IN THE CIRCUIT COURT OF THE UNITED STATES FOR THE EASTERN DIVISION OF THE EASTERN JUDICIAL DISTRICT OF MISSOURI

UNITED STATES OF AMERICA, PETITIONER,

v.

STANDARD OIL COMPANY OF NEW JERSEY ET AL., DEFENDANTS

DEFENDANTS' TESTIMONY

On behalf of the defendants:

Mr. JOHN G. MILBURN, Mr. MORITZ ROSENTHAL
Mr. JOHN S. MILLER, Mr. M. F. ELLIOTT, Mr. MARTIN CAREY, Mr. F. L. CRAWFORD, Mr. DOUGLAS CAMPBELL

On behalf of the petitioner:

Mr. FRANK B. KELLOGG, Mr. C. B. MORRISON
Mr. J. HARWOOD GRAVES

VOLUME 11

For List of Witnesses see last volume

WASHINGTON
GOVERNMENT PRINTING OFFICE
1908

The hearing was resumed before the special examiner, Hon. Franklin Ferriss, at the above place, by agreement of parties, at 10.30 a. m., Monday, May 25, 1908.

Present: On behalf of the petitioner, Mr. Frank B. Kellogg, and Mr. J. Harwood Graves; on behalf of the defendants, Mr. Moritz Rosenthal, Mr. Frank L. Crawford, and Mr. W. Cleveland Runyon.

C. C. STEINBRENNER, being recalled as a witness on behalf of the defendants, testified as follows:

Direct examination by Mr. ROSENTHAL:

Q. You are the same C. C. Steinbrenner who has heretofore testified as a witness for the Government?—A. Yes.

Q. Have you compiled certain figures showing the relative cost on the Pennsylvania system and the Chicago, Milwaukee & St. Paul system?—A. Yes.

Q. I show you defendants' Exhibits 12-A, 12-B, 12-C, and 12-D. Please state whether this exhibit contains figures so compiled.—A. Yes, sir.

Q. Where did you obtain the figures from that are found on Exhibit 12-A?—A. The figures on Exhibit 12-A were taken from the Pennsylvania's statement for the year contained in
6575 1904-5 that are in evidence, worked out on the average guaranties for each of the three divisions comprising the Pennsylvania system.

Q. You say you compiled them from the statements already in evidence. You mean the Government exhibits?—A. Yes, sir.

Q. From the Pennsylvania Railroad?—A. From the Pennsylvania Railroad.

Q. Now, explain particularly, will you, just how you made them up.—A. The mileage was taken from the statements which are in evidence and the guaranties for the different classes of service, in order to arrive at the guaranteed cost for each division; the mileage for each class of service was then totaled and divided into the total guaranteed cost of the respective services, and an average guaranty for the entire system was arrived at, making the average guaranty for the locomotives of the entire Pennsylvania system 1.6112 cents; for passenger cars 0.1532, and the average guaranty for freight cars as 0.06055 per thousand miles.

Q. What do you mean by the "locomotive mileage?"—A. The mileage made by the locomotive equipment.

Q. That is, the total number of miles run of all the locomotives on the Pennsylvania system?—A. Yes, sir.

Q. And the same explanation with respect to passenger and freight equipment?—A. Yes.

Q. Now please explain Exhibit 12–B.—A. The first statement on 12–B is the locomotive mileage of the Chicago, Milwaukee &
6576 St. Paul Railroad, passenger-car mileage of the same line, and freight-car mileage of the same line, for the year 1904.

Q. Where did you get those figures from?—A. From the statements already put in evidence by the Government. These respective mileages were multiplied by the average guaranties produced on sheet A. This gave us the cost for the C., M. & St. P. Railway under the guaranties of the Pennsylvania system.

Q. And that shows on sheet B of Exhibit 12?—A. Yes.

Q. And what else is there on sheet B?—A. We have followed the same method with the mileage of the C., M. & St. P. for the year ended January 31, 1907.

Q. And where did you get those figures from?—A. They were taken from the statement in evidence for that year for the C., M. & St. P. Railway.

Q. And the same calculation with respect to that as was made with respect to the year 1904?—A. Yes, sir.

Q. Now please explain sheet C of Exhibit 12.—A. Sheet C contains the mileage of the three divisions of the Pennsylvania system for the year 1906 and the average guaranties that were in force during that year.

Q. Will you explain again just how you get that average guaranty?—A. That average guaranty is arrived at by taking the total mileage in the respective services, multiplied——

Q. The respective locomotive services?—A. No; I am now covering the entire sheet. Do you want each service separately?

6577 Q. Go ahead and explain it in your own way.—A. The respective mileage—that is, locomotive, passenger, and freight cars—totaled for the entire system, multiplied by the guaranties in force on the Pennsylvania for the year 1906, thus giving the total guaranteed cost to the Pennsylvania system. This total cost is divided by the total mileage in the respective services, giving an average guaranty for each service.

Q. I would like to have you explain that method of computation, taking first your locomotive mileage and your method of getting at the locomotive average amount paid.—A. The locomotive mileage for the Pennsylvanias lines east, plus the locomotive mileage for the Pennsylvania Company and the P., C., C. & St. L., gives us a total locomotive mileage for the entire system. The mileage for each division is multiplied by the guaranties in force.

Q. By the locomotive guaranties in force?—A. By the locomotive guaranties in force for each division; giving a guaranteed cost for each division. The locomotive mileage is then totaled and the cost is totaled; the cost is then divided by the locomotive mileage, which gives the average guaranty for the system.

Q. That is, the average guaranty on locomotives?—A. The average guaranty on locomotives.

Q. For the Pennsylvania system?—A. For the Pennsylvania system.

Q. And the same process used in getting the average passenger and average freight cost?—A. Yes.

6578 Q. That is, each one of these three services is treated separately?—A. Separately.

Q. What do you mean by "the guaranties in force in the year 1906?"—A. The guaranties under the present contract with the Pennsylvania divisions.

Q. The Government exhibits only cover, I think, for the Pennsylvania system, the years 1904 and 1905. Your figures, that you have just been reading from on sheet C, embrace figures on the Pennsylvania system for the year 1906?—A. Yes.

Q. Those figures, you say, you have taken from existing Pennsylvania system contracts?—A. Yes, sir.

Q. Which are in the possession of the Galena-Signal Company?—A. Yes.

Mr. ROSENTHAL. And which we offer to produce, if the Government wishes.

Q. Will you please point out wherein and in what respect changes were made in the 1906 contract as compared with the 1904 contract, on the Pennsylvania?—A. The Pennsylvania Company and the P., C., C. & St. L., in 1904, had a guaranty of $1.30 on locomotives; the Pennsylvania Company in the same year had a guaranty on passenger cars of 0.0639; the P., C., C. & St. L. had a guaranty on passenger cars of 0.0873; the Pennsylvania Company on freight cars had a guaranty in 1904 of 0.059, also the P., C., C. & St. L. the same figure; in 1906 the Pennsylvania Company and the P., C., C. & St. L.

6579 had a locomotive guaranty of $1.90.

Q. Showing an increase of how much?—A. Sixty cents a thousand miles.

Q. When in 1906 was that made?—A. The early part of 1906; I have forgotten just when. The Pennsylvania Company and the P., C., C. & St. L. had a passenger guaranty of 10 cents per thousand miles as against 6.39 cents and 8.73 cents respectively.

Q. In 1904?—A. Yes. The freight car guaranty for the Pennsylvania Company and the P., C., C. & St. L. was 6 cents in 1906 as against 5.9 cents for both lines in 1904.

Q. Now will you please explain sheet D of Exhibit 12?—A. Sheet D shows the C., M. & St. P. mileage for the year ended January 31, 1907.

Q. Where did you get that from?—A. From the statements in evidence.

Q. What statements, Mr. Steinbrenner?—A. Government statements in evidence.

Q. Certain Government exhibits?—A. Government exhibits.

Q. Very well; go ahead.—A. The locomotive, passenger, and freight car mileage of the C., M. & St. P., multiplied by the respective guaranties as shown on sheet C——

Q. Guaranties of the Pennsylvania——A. Of the Pennsylvania.

Q. As shown on sheet C?—A. As shown on sheet C—giving the cost to the C., M. & St. P. Railway at Pennsylvania guaranties. This statement shows the amount actually paid by the C., M. & St. P. Railway, for the year ended January 31, 1907, and the
6580 difference between what it would have paid, based upon the guaranties of the Pennsylvania, and what it actually did pay, a difference in favor of the C., M. & St. P. of $10,689.96.

Q. That is to say, if you had applied to the St. Paul mileage the guaranteed-cost figures, which the Pennsylvania system obtained for that same year, it would for that same year have cost the C., M. & St. P.——A. $10,689.96 more.

Q. Than it actually did cost the C., M. and St. P.?—A. More than it actually did cost.

Q. Have you fully explained all of the sheets on the exhibit?—A. Yes.

Q. Now, instituting that same comparison for the year 1904 and for the year ending January 31, 1907, as shown by Sheet B of Exhibit 12, using Pennsylvania guaranties, however, as they were in 1904, what do you find?—A. Using the guaranties of the Pennsylvania for 1904 on the Chicago, Milwaukee & St. Paul mileages for the year ended January 31, 1904, the C., M. & St. P. paid in excess of those guaranties $3,159.33.

Q. On a total cost of how much?—A. On a total cost of $105,026.15. Taking the guaranties of 1904 for the Pennsylvania and applying them to the mileage of the C., M. & St. P. for 1907, the latter road paid $1,351.42 in excess of the Pennsylvania, on a total cost of $115,552.53.

Q. I direct your attention for just a moment to Sheet C of Exhibit 12. Where did you get the locomotive, passenger, and freight
6581 mileage figures shown on this sheet?—A. From statements in evidence.

Q. What figures on any of these sheets, 12–A, 12–B, 12–C, or 12–D, have you obtained from statements or books or documents not already in evidence?—A. The guaranteed rates as shown on sheet C——

Q. The guaranteed cost?—A. Cost; the average guaranteed rates as shown on sheet C.

Q. That is, figures under head of "Average guaranty" and figures under the head of "Guaranteed cost?"—A. Yes.

Q. And those, I understand, you got from the Pennsylvania contracts of that year, 1906?—A. Yes.

Q. Where are those contracts?—A. In Franklin, Pennsylvania.

Mr. ROSENTHAL. Mr. Kellogg, do you want us to produce the originals, or will you take these figures as accurate, subject to your right to verify?

Mr. KELLOGG. I presume we will not want the originals. I will ask him some questions about them.

Mr. ROSENTHAL. Whenever you want the original of anything that we have not got here, if you will kindly call for it we will be glad to produce it.

Mr. KELLOGG. Yes.

Mr. ROSENTHAL. That is all for the time being, Mr. Steinbrenner.

Cross-examination by Mr. KELLOGG:

Q. The Pennsylvania guaranty, you say, was increased from
6582 $1.30 per thousand mile run to $1.90, commencing in the winter of 1906?

Mr. ROSENTHAL. Oh, no, no; he didn't say that.

WITNESS. I am not saying when it commenced. I have forgotten just when it did take effect. It was in effect, however, in 1906.

Q. What time in 1906?—A. I think it started in February or March, 1906.

Q. When was the contract actually signed increasing that guaranty from $1.30 to $1.90?—A. I think possibly in August or September of 1906. It was under negotiation all that time.

Q. It was dated back to commence in February, 1906?—A. I think so.

Q. The actual fact is it was increased after the investigation of the Bureau of Corporations, wasn't it?—A. Yes; but the negotiations for an increase had started long before the expiration of the old contract.

Q. And they were accelerated by the investigation of the Bureau of Corporations?—A. Not at all.

Q. When the agent of the Bureau of Corporations visited the Pennsylvania road the guaranty was $1.30, wasn't it?—A. I don't know when they visited them.

Q. Well, they got the information from the Pennsylvania road, didn't they?—A. I don't know.

Q. You don't know anything about that?—A. I don't know anything about that.

Q. You knew about the testimony before the Interstate Commerce Commission, didn't you?—A. No.

6583 Q. You never heard of that?—A. No.

Q. You never heard of the Pennsylvania agent being called before the Interstate Commerce Commission to testify?—A. I have heard of it, yes.

Q. Oh, you did hear of it?—A. Yes.

Q. Now, he testified that the guaranty was $1.30, didn't he?—A. I don't know.

Q. Well, when did you hear of it?—A. I heard of it in the papers.

Q. Now, that was before they signed the new contract, wasn't it?—A. I don't recall that.

Q. You don't recall that?—A. No.

Q. But you do know they did not sign the contract until after the Bureau had investigated the Pennsylvania Railroad?—A. I am not sure as to that.

Q. Well, you think that is the fact, don't you?—A. Well, I don't know that I think it.

Q. What did you mean a few moments ago when you said it was afterwards?—A. I didn't say it was afterwards.

Q. What did you say?—A. I said that I didn't know when the Pennsylvania was investigated; I had heard something in the newspapers about it.

Q. You heard that before the new contract was signed?—A. I don't recollect as to the date.

Q. Can you tell me now exactly when that contract was signed?—A. No; I couldn't tell you exactly.

6584 Q. Will you send for the contract and find out?—A. Yes.

Q. It was dated back, anyhow?—A. I think so.

Q. That increased the locomotive guaranty from $1.30 to $1.90 per thousand-mile run?—A. Yes.

Q. Now, referring to the Pennsylvania Company contract, which was $1.30 up to 1906, previous to that time it had been down as low as 74.6 cents, hadn't it?—A. That was the first contract we had with them.

Q. In other words, from 1897 until and including 1903, or up until 1903, the guaranty of the Pennsylvania Company was 74.6 cents per thousand miles run, wasn't it?—A. I don't know when that——

Q. Will you look at that schedule and see whether that is the fact?

Mr. ROSENTHAL. What do you mean by the "Pennsylvania Company?"

Mr. KELLOGG. The lines west of Pittsburg.

Mr. ROSENTHAL. You see, I sometimes speak in my examination of the "Pennsylvania Company," meaning the Pennsylvania system. That is not what you mean by it?

Mr. KELLOGG. No; I mean the Pennsylvania Company lines west of Pittsburg.

WITNESS. I don't recollect now when that guaranty ceased, but I presume that is taken from the statements in evidence, and, if it is, it is correct.

Q. It is so taken. And assuming this to be correct, down to 1903, the guaranty of the Pennsylvania Company lines west

6585 of Pittsburg was 74.6 cents for each thousand miles run, was it not?—A. Yes.

Q. Now, the guaranty of the Chicago, Milwaukee & St. Paul Railroad on its system was $1.40, was it not, during the same time [showing witness paper]?—A. Yes; if that is taken from the statements.

Q. And after that, down to 1907, it was $1.70 on the Milwaukee road?—A. Yes.

Q. And the Pennsylvania was $1.30 until 1906?—A. Yes.

Q. When it was increased to $1.90. You mean by the "Pennsylvania Company," as they were designated in the exhibits which you furnished us, the lines west of Pittsburg, excluding the Pan Handle?—A. The "Pennsylvania Company" is generally known as the Pittsburg, Fort Wayne & Chicago.

Q. That is it. It is the line from Pittsburg to Chicago?—A. Yes.

Q. So that the guaranty of the Milwaukee company during several years was nearly double that of the Pennsylvania Company?—A. Yes; both, however, having been taken on the basis of the previous cost.

Q. Well, it was nearly double, wasn't it?—A. Yes.

Q. That is what I want to know. Now, the oil sold to both companies, the invoice price is the same?—A. Absolutely.

Q. Take the engine. The invoice price to both companies being the same during those years down to 1906, the Pennsylvania company paid an average of about 38½ per cent of the invoice
6586 price, didn't it [showing witness paper]?—A. That is as you have it here.

Q. Well, that is about correct, isn't it?—A. Yes.

Q. And the Milwaukee company paid an average of 98.4 per cent?—A. Yes.

Q. So that, as a matter of fact, the Milwaukee company practically paid the invoice price and the Pennsylvania practically paid 39 per cent of the invoice price for oil?—A. Yes.

Q. In other words, the Milwaukee company paid nearly two and a half times as much per gallon for its oil as the Pennsylvania company?—A. If you put it on that basis, yes.

Q. Now, you have made up a statement here, Exhibit 12–A to 12–D. You have simply compared the mileage guaranty between the Pennsylvania lines, all of them, and the Milwaukee lines, haven't you?—A. Yes.

Q. You haven't taken into consideration the amount of oil used for each thousand-mile run, have you?—A. Yes; exactly.

Q. Isn't it a fact that the Pennsylvania uses much more oil per thousand-mile run than the Milwaukee?—A. Yes.

Q. Certainly. And should therefore pay more? Isn't that correct?—A. No; they pay as much per thousand miles as any other road.

Q. The Pennsylvania uses nearly double the amount of oil per thousand-mile run as the Milwaukee?—A. Yes; that is their trouble.

Q. They have bigger locomotives and bigger trains, haven't they?—A. No; they appear to be a little more extravagant;
6587 that is all.

Q. Then, why do you furnish them oil per gallon for about one-third what you charge the Milwaukee?—A. I think I stated that in the last hearing. We are losing money on that road.

Q. Oh, you are?—A. Yes.

Q. The Pennsylvania company—you took that contract based on the Pennsylvania company's experience in lubricating their own road, didn't you?—A. Yes; at 90 per cent of it.

Q. And their actual cost of lubricating their own road was just about the same as your contract, or a little less?—A. It was more.

Q. A little less, wasn't it?—A. It was more. Our figures are 90 per cent of their figures.

Mr. ROSENTHAL. That is, your figures originally?

WITNESS. Originally were 90 per cent of their figures.

Q. Isn't it a fact now—you refresh your memory by looking at the statement—isn't it a fact that your contract is exactly what the Pennsylvania's cost was?—A. No.

Q. After negotiating with the Pennsylvania company to take it at 90 per cent of their previous cost——

Mr. ROSENTHAL. When?

Q. In 1897, for 1897—isn't it a fact that you refused to take it at 90 per cent of their actual cost?—A. What are you talking about now?

Q. The Pennsylvania company west of Pittsburg.—A. We
6588 took the locomotives at 100 per cent and cars at 90 per cent of its cost.

Q. You took the locomotives at 100 per cent?—A. Yes.

Q. Now, the locomotives are about 70 per cent of the total cost, aren't they?—A. I don't recollect what that average is.

Q. Well, you are a great expert on this subject. Isn't that what it is?

Mr. ROSENTHAL. He says he doesn't recollect.

Q. You know pretty near the cost of lubricating a railroad. The locomotive service is about 70 per cent on an average?—A. I never calculated that way.

Q. What is your judgment?—A. It is of the majority.

Q. Well, it is very largely the majority?—A. I wouldn't say that it was.

Q. Isn't it a fact that the locomotive expense is 74 per cent, the passenger car about 10, and the freight car about 20, on an average?—A. I couldn't say without having looked it up.

Q. You have no judgment on that subject?—A. I know it is the larger portion of the lubrication cost.

Q. So you did take the Pennsylvania locomotive cost at 100 per cent of the previous cost of the Pennsylvania when it was lubricating its own system?—A. That is for the lines west, yes.

Q. Yes, that is what I am talking about—the Pennsylvania company. But since that time you have increased the guaranties from 74.6 on the Pennsylvania, first, to $1.30 and then to $1.90?—A. Yes.

Q. The Pennsylvania company. Now, you say you are losing money on the Pennsylvania contract?—A. Yes.

6589 Q. Are you to-day losing money?—A. Yes.

Q. You have kept it up for ten years?—A. I suppose so.

Q. And you are making it up on the other roads?—A. No.

Q. You are not? Well, it appears that the Galena-Signal Oil Company is earning 100 per cent on its capital?—A. We are earning something; I don't know exactly what it is.

Q. It isn't getting very poor, is it?—A. No; we don't intend to.

Q. Then you are making it up on other roads; you couldn't be losing on all of them?—A. We are making it on our general business, yes.

Q. Are you losing money on the Central of Georgia?—A. Yes.

Q. On the Charleston & Western?—A. No. That is a part of the Atlantic Coast Line and goes into that system.

Q. On the Charleston & Western line it is a separate contract, isn't it?—A. Yes; but we consider it as part of the Atlantic Coast Line.

Q. And for ten years, or about that, the average cost—no, I beg your pardon—for four years, the Charleston & Western, the average cost is 54.9 per cent of the invoice price?—A. We never consider that as a separate road on our books.

Q. Well, you have a separate contract?—A. Yes.

Q. Are you losing money on it, or making money?—A. Not when we consider it with the Atlantic Coast Line.

Q. Was it a part of the Atlantic Coast Line when you took
6590 the contract?—A. Yes.

Q. Separate contract?—A. Yes.

Q. Separately managed?—A. No; simply a separate road.

Q. As a matter of fact, you gave the Charleston & Western Carolina a low guaranty because it had been purchasing its oil from somebody else?—A. We took it the same as we did any other contract.

Q. You did it because they had been purchasing their oil of another company?—A. No; because we wanted it. We took it at 90 per cent to get it.

Q. You had to make that price to get it?—A. We didn't know what the price was when we took it.

Q. How did you make it 90 per cent, then?—A. We took it at 90 per cent of what it was, and they furnished the figures, and the contract was signed.

Q. Oh, they did?—A. Yes.

Q. The Central of Georgia, you have had that for a number of years, haven't you?—A. Yes.

Q. And you are furnishing that company for 54.2 per cent of its invoice cost on an average for all the years?—A. That is about it, I think.

Q. Now, that company previously had had a contract with an independent company, hadn't it, for furnishing oil?—A. I didn't know.

Q. You didn't know anything about that? You didn't know
6591 about the New York Lubricating Oil Company?—A. I didn't know what company had it.

Q. But you knew some company had it?—A. Yes.

Q. You knew you didn't?—A. Yes.

Q. And you made that price to get it?—A. Yes; and we got the business.

Q. Now, are you losing money on that?—A. Yes.

Q. You are making that up, then, out of the other roads?—A. Out of our gross business.

Q. Now, the Southern Pacific Company, from 1897 down to 1906—you have furnished oil to the Southern Pacific Company for 49.6 per cent of the invoice price, haven't you?—A. I don't remember the percentage.

Q. Well, isn't that about right? You look over these figures and see [handing witness paper].—A. You have treated each system separately. We treat that as the Harriman lines.

Q. I know, but you have a separate contract for the lines west of El Paso called the Southern Pacific?—A. No; we have a blanket contract covering all those lines.

Q. Well, during these years you had separate contracts, up to two years ago, of the Southern Pacific, called the Southern Pacific system, hadn't you?—A. Up till March, 1904.

Q. Up to March, 1904, then?—A. Yes.

Q. During those years the Pacific system west of El Paso had a separate contract?—A. Yes.

Q. And you furnished the figures to us under that contract?—A. Yes.

6592 Q. Showing the results of that contract. And this is made up on that result. So on the lines west of El Paso, during those years, you furnished them oil for about 49.6 per cent of the invoice price, didn't you?—A. I don't recollect the figures now.

Q. Well, substantially half of the invoice price?—A. The entire Pacific system must be taken as a whole. We do not treat any of those lines as a separate contract, notwithstanding we may have a separate contract.

Q. Well, then, include the whole. Take the Southern Pacific Atlantic system. That includes the rest of the Southern Pacific, doesn't it?—A. No.

Q. What lines?—A. The Union Pacific, the Oregon Short Line, and the Oregon Railway & Navigation Company.

Q. But up to two years ago you kept them separate?—A. We didn't treat them as a separate system any more than we did the Pennsylvania.

Q. Take the entire Southern Pacific system (Mr. Harriman claims it is a separate system), isn't it a fact that during ten years you have furnished them their oil for a little over 50 per cent of the invoice price?—A. I don't recollect what it is.

Q. Look and see. Here is the Southern Pacific Atlantic and the Southern Pacific system.—A. (After looking at paper in hands of Mr. Kellogg.) That seems to be the way you have worked it out there.

6593 Q. Well, your recollection is that is was very much less than the invoice cost, isn't it?—A. Some, yes.

Q. Less than 60 per cent of the invoice cost?—A. No; I wouldn't say so.

Q. Well, what would you say?—A. Something about 75 or 80 per cent; that is my recollection of it.

Q. This has freight excluded; this statement I showed you is freight excluded.—A. Well, I have never agreed to that method of working it out.

Q. I understand. I was going to ask you about that. I will show you the other figures. Now, Mr. Steinbrenner, I show you Petitioner's Exhibit 464, which is the Southern Pacific Atlantic system. That was made up by you, wasn't it, and furnished the Government?—A. It looks that way.

Q. Now, that year you refunded to the Southern Pacific Atlantic system 46 per cent of the invoice price, didn't you?—A. Yes.

Q. That included the freight?—A. Yes.

Q. You figured the freight in?—A. The freight in.

Q. And you did make your figures for the Atlantic system and the Pacific system separately, didn't you?—A. Yes.

Q. And the Atlantic system included the Southern Pacific's lines east of El Paso?—A. Yes.

Q. And the Pacific system west of El Paso?—A. Yes.

Q. Now, I show you a compilation of your figures—assuming it to be correct, and you shall have full opportunity to check it up—

6594 a compilation of the Southern Pacific Atlantic system, excluding freight, for the ten years, they paid 57.3 per cent of the invoice price. Including freight, state whether they did not pay an average of a little over 60 per cent of the invoice price. The red figures are the percentages you paid back to the Atlantic system.

Mr. ROSENTHAL. Are you examining him now upon something that is in evidence?

Mr. KELLOGG. A compilation of things that are in evidence.

Mr. ROSENTHAL. The table you are now showing the witness, as compiled, is not in evidence at the present time?

Mr. KELLOGG. No. The figures from which it is taken are in evidence.

Mr. ROSENTHAL. That is a compilation you have made out from various exhibits which have already been offered?

Mr. KELLOGG. Yes; furnished by Mr. Steinbrenner.

Mr. ROSENTHAL. And which you have not yet offered but propose to use probably some other way?

Mr. KELLOGG. Yes, sir.

Mr. ROSENTHAL. I think Mr. Steinbrenner should have an opportunity to consider a compilation of that kind with some degree of care before making his answer.

WITNESS. I couldn't tell you what the per cent would be covering these ten years without having gone over the calculations; that is, the average per cent.

Q. Will you look and see what refund you made to the Southern Pacific Company, Atlantic system, in 1897?—A. We made a refund of $14,973.

6595 Q. What percentage? Please state.—A. 46 per cent.

Q. 1898, what percentage?—A. 35.

Q. 1899?—A. 33.

Q. 1900?—A. 33.

Q. 1901?—A. 36.

Q. 1902?—A. 44.

Q. 1903?—A. 49.

Q. 1905?—A. 34.

Q. 1906?—A. 23.

Q. Now, then, you wouldn't say that they paid 75 per cent of the invoice prices, would you?—A. I couldn't say what the average might be.

Q. Well, it is pretty evident.—A. It would probably be a little less than 75 per cent.

Q. There is only one year in which they paid 70 per cent, is there, according to your own figures? Is that correct?—A. One year.

Q. And four years in which they paid less than 60 per cent?—A. I haven't counted the years. That was the beginning of our experience there.

(Witness handed compilation.)

Q. The locomotive guaranty on the Southern Pacific, Atlantic system was, during those years, considerably less than the locomotive guaranty on the Milwaukee, wasn't it?—A. Yes; it was 90 per cent of the previous cost.

Q. It was less than the Milwaukee, wasn't it?—A. Yes.

Q. And so was the passenger-car service and the freight-car
6596 service less than the Milwaukee? The guaranties, I mean.—A. The passenger was less; the freight, I think, was more.

Q. Please look and see. The freight was less except two years, wasn't it?—A. The freight was less on the Milwaukee during all those years. I think their guaranty was 6 cents.

Q. No; the Chicago, Milwaukee & St. Paul guaranty for 1898 was 10.68 cents, wasn't it?—A. For passenger service.

Q. For freight-car service.—A. No.

Q. Well, look and see.—A. (after referring to memorandum). Now, what is your question?

Q. I said for 1898 the freight-car-service guaranty on the Milwaukee road was 10.66 cents, while on the Southern Pacific, Atlantic system, it was 6.48 cents.—A. Yes.

Q. And each year thereafter down until the year 1903 the Southern Pacific was less than the Milwaukee?

Mr. ROSENTHAL. On what?

Mr. KELLOGG. On freight-car service.

A. Down to what year?

Q. 1903.—A. Down to 1903 the freight was less than on the Atlantic system.

Q. On the Atlantic system of the Southern Pacific.—A. Yes.

Q. And during all the years the passenger was less on the Atlantic system of the Southern Pacific? I think you said that was true.—A. Yes.

Q. Now, as a matter of fact, the Southern Pacific uses more oil per thousand mile run than the Milwaukee, doesn't it?—A. Yes.

6597 Q. And pays less for it?—A. I don't know that it would work out on the unit basis.

Q. Well, it has a lower guaranty?—Yes.

Q. And uses more oil?—A. Yes.

Q. Then, it uses more oil and pays less?—A. More oil per thousand miles.

Q. And pays less per gallon for it, doesn't it?—A. Yes.

Q. Pays less per thousand miles?—A. Not now.

Q. Well, I mean during those years I have tabulated.—A. During those years, yes.

Q. And at the present time the guaranty on the Southern Pacific, Atlantic system, is $1.75, as against the Milwaukee's $1.70?—A. $1.70.

Q. While the passenger-car service of the Milwaukee is 15 against the Southern Pacific's 13?—A. Yes; and it is costing them about 7 on the Milwaukee.

Q. The Milwaukee is paying 100 per cent of the invoice price today, isn't it?—A. I think so.

Q. And the Southern Pacific, Atlantic system, 74.2 per cent—about that? With the freight included that should be, however, in that question.—A. Well, I don't know what it would be with the freight excluded.

Q. Well, give it with the freight included, then.—A. The Southern Pacific, Atlantic system, is paying 77 per cent.

Q. 77 per cent?—A. Yes; that is, of oils consumed on locomotives, passenger, and freight cars.

6598 Q. It is paying 77 per cent of the invoice price?—A. Of oils consumed on rolling equipment.

Q. That is right. And the Milwaukee is paying 100 per cent?—A. I think so.

Q. Now, then, if the Southern Pacific Company paid 100 per cent of the invoice price, of oils it consumes, instead of paying $1.75 per thousand miles run, it would pay $3.01 per thousand miles run, wouldn't it?—A. Not necessarily; no.

Q. Well, about that, wouldn't it?—A. No.

Q. It wouldn't?—A. I think the cost could be brought down to these figures.

Q. I mean on its present performance—on its present performance.—A. We don't consider it that way, Mr. Kellogg.

Q. Well, on the performance it has had in the past, then, as actually applied.—A. Its performance is bad; yes.

Q. On the performance it has had in the past, if it paid the 100 per cent, the same as the Milwaukee, instead of paying $1.75 for

locomotive run it would pay about three dollars?—A. No; bring it the other way; bring it down to the guaranty. They can make these figures if they will.

Q. My question was——A. I can't answer that question, Mr. Kellogg.

Q. Yes; you can answer it if you want to.—A. No.

Q. The Southern Pacific actually had a guaranty of $1.75 for locomotive mileage, 13 cents for passenger service, and 8 cents for freight car service?—A. Yes.

Q. The Atlantic system?—A. Yes.

6599 Q. The Pacific system had an actual guaranty of the same, did it not?—A. Yes.

Q. Now, the Milwaukee had a guaranty of $1.70, 15, and 6, respectively?—A. Yes.

Q. But it paid 100 per cent?—A. It paid full invoice price.

Q. Now, the Southern Pacific uses more oil than the Milwaukee?—A. Yes.

Q. So that on the past performance, as it actually has taken place, if the Southern Pacific had paid 100 per cent, the same as the Milwaukee, instead of paying $1.75 per thousand miles run of engines, it would have paid about three dollars?—A. We wouldn't consider it in that way.

Q. How would you consider it?—A. We would have brought the cost down to $1.75.

Q. Why haven't you done it?—A. Simply because we haven't had the cooperation.

Q. Then, are you losing money on the Southern Pacific?—A. Yes.

Q. And you are making that up out of your other roads?—A. We consider the entire Harriman system combined. The Union Pacific has the same guaranty as the Southern Pacific, and paying 100 per cent, exactly.

Mr. ROSENTHAL. That you treat as part of the Harriman system?

WITNESS. The Harriman system, including the Oregon Short Line and the Oregon Railway & Navigation Company.

Q. You are losing money on the Southern Pacific, they are

6600 getting their oil too cheap, and the Union Pacific you are making money on?—A. They are lubricating cheaper on the Union Pacific.

Q. You are making money on the Union Pacific?—A. We get the full invoice price.

Q. You are making money on the Union Pacific?—A. We expect to; yes.

Q. Well, you are making money on the Union Pacific?—A. Yes.

Q. Well, that answers it. Then, you are giving the Southern Pacific the advantage of the Union Pacific?—A. Not at all.

Q. Then, the result is, of all of your business with the railroads, if the railroad uses too much oil and has a bad performance, you make it up to them by carrying it cheap?—A. No; we expect to get the full invoice price sometime.

Q. Oh, sometime?—A. Yes.

Q. When is this "sometime" coming?—A. Frequently it happens very early.

Q. When are you going to get it from the Pennsylvania? You say you have been carrying them for ten years on their bad service.—A. We are getting all the time nearer and nearer to it.

Q. And if you are let alone I suppose you will reach that place?—A. We will.

Q. How much nearer are you to-day than you were ten years ago?—A. Considerably nearer.

Q. You raised the guaranty last year?—A. Yes.

6601 Q. Now, will you tell me any reason why you should furnish oil to the Pennsylvania system at a loss?—A. Yes; for advertising purposes.

Q. Well, is that the case with the Southern Pacific?—A. The same; yes.

Q. And the Central of Georgia?—A. Yes.

Q. Is that a road where the great value is in the advertising?—A. It is in that territory.

Q. It is a fact that you want all the railroads, and you are willing to carry part of them at a loss for the sake of keeping anybody else from having them?—A. We want them; yes.

Q. And to make it up on the other lines?—A. Not at all. We expect to get our full invoice price sometime on those lines.

Q. In the meantime you are willing to accept the profits you make out of the Milwaukee and the other companies?—A. Do just the same as any other merchant would.

Q. And in that way you have got all the lines in the United States, pretty nearly?—A. Practically.

Q. And you expect to get them all?—A. Hope to.

Q. Now, the Pennsylvania lines east of Pittsburg paid 50 per cent of the invoice price in 1897, and 51.9 per cent in 1906; is that correct?—A. (After referring to Government exhibits.) All lines east, for 1906, is that what you are referring to?

Q. Yes.—A. Paid 52 per cent.

Q. In 1907, I am speaking about.—A. I haven't got 1907.

6602 Q. Yes; 51.9 per cent; I think you have it.—A. 52 per cent here.

Q. Well, 52 per cent. The fraction is not carried out. Now, 1897 was what?—A. 50.

Q. As a matter of fact, then, you only increased it 2 per cent in ten years?—A. Yes.

Q. Now, isn't it a fact that really from 1898 down it has decreased—the percentage? In 1898 were you not getting 62.8 per cent of the invoice price?—A. The Pennsylvania Railroad, all lines east, 11 months ended March 31, 1907, which I think was the first period under our contract——

Q. I am talking of 1898. We will get to 1907.—A. Was 50 per cent. The 12 months ended March 31, 1898, was 37 per cent. So we made some progress in the first year.

Q. In other words, you refunded 37 per cent?—A. Yes.

Q. They paid 63 per cent?—A. 63 per cent.

Q. Now, then, in 1898 the Pennsylvania Company paid you 63 per cent of the invoice price?—A. Pennsylvania lines east.

Q. I should have said the Pennsylvania lines east of Pittsburg.—A. Yes.

Q. Paid you 63 per cent of the invoice price?—A. Yes.

Q. And in 1906 the same lines paid you 52 per cent of the invoice price?—A. 52, yes.

Q. So that in ten years, or eight years, instead of increasing, you decreased the cost of oil to the Pennsylvania Company?—A. We increased it by over 15 per cent.

Q. Very well, but the Pennsylvania was paying you less of the invoice price in 1906 than it was in 1898?—A. Yes; but
6603 they were paying more per thousand miles.

Q. The guaranty was——A. Was increased over 15 per cent.

Q. They are paying a less per cent of the invoice price of the oil to-day than they were in 1898, are they not?—A. Yes.

Q. Now, when do you expect to get 100 per cent, as you said, at that rate?—A. Just as soon as our present contract can be negotiated. We are negotiating with them now for an increase.

Q. You are going to raise them up?—A. Yes.

Q. But during these ten years you have been carrying them?—A. Yes.

Q. Now, under your contracts you can change it every year, can't you?—A. Yes.

Q. You could make a new contract every year?—A. Yes.

Q. And yet you have carried them for ten years?—A. Yes.

Q. For advertising purposes?—A. Yes.

Q. And the Southern Pacific the same?—A. Yes.

Q. And the Central of Georgia the same?—A. No; we have only got them four years.

Q. You have carried them for four years?—A. For three years.

Q. Let us see what other companies you carry, for advertising, at a loss. Did you make any money on the Toledo, Peoria & Western road?—A. No.

Q. Lose any money?—A. Yes.

6604 Q. Carry that for advertising?—A. That is a Pennsylvania line, you know.

Q. Oh, it is a Pennsylvania line?—A. Yes.

Q. Was it in 1897?—A. Yes.

Q. And each year thereafter. The Buffalo, Rochester & Pittsburg, have you made any money there?—A. We are losing money there.

Q. What company owns that?—A. The Buffalo, Rochester & Pittsburg Railroad Company.

Q. That is independent, is it?—A. Independent.

Q. Are you carrying that for advertising purposes?—A. No; we expect to meet those figures some time.

Q. In the meantime you are willing to carry them because you can't get any more?—A. We have got a high figure there. Those figures can be met, Mr. Kellogg.

Q. But they have not been?—A. No. We hope to educate them up to those figures.

Q. And if you can't do that you will educate them up to a raise?—A. Yes.

Q. As a matter of fact, they have paid less and less for their oil every year since 1900, haven't they—less and less percentage of the gross invoice price?—A. I don't know what the operations have been now. I will look at these figures [looking at Government exhibits].

Mr. KELLOGG. Scratch that out. I guess I had the wrong figures. The Buffalo, Rochester & Pittsburg's average for nine years was 58.6 per cent, about that, wasn't it?

6605 A. I don't know what the average would be.

Q. Well, it would be about that?—A. I don't know.

Q. Now, the Buffalo, Rochester & Pittsburg road isn't known abroad, it is?—A. No; not that I know of.

Q. You testified last fall that you were willing to lose money on the Pennsylvania road for the advertising effect in Europe.—A. Yes.

Q. You don't carry the Buffalo, Rochester & Pittsburg for that purpose, do you?—A. No. That wasn't touched upon.

Q. Or the Central of Georgia?—A. No.

Q. The Southern Pacific?—A. No.

Q. What particular roads does the Central of Georgia advertise you with?—A. The southern section.

Q. Do you think it would help you to get contracts with the southern roads to show that you were carrying the Central of Georgia at a loss and making money out of *them?*—A. No, it helps us in this way: In the interchange of cars between those lines, the effect of using an inferior grade of oil on the Central of Georgia might affect our business, and that is why we carry the Central of Georgia.

Q. You think you are the only ones that can furnish good oils?—A. Yes.

Q. I have heard that before, I believe.

Mr. ROSENTHAL. The results seem to have demonstrated that.

Q. Now, referring to the Central of Georgia, your guaranty for locomotive mileage for 1902, 1903, 1905 was 88 cents per

6606 thousand-mile run, was it not?—A. I think that was the figure taken on a previous cost basis.

Q. Now, that previous cost basis was their own cost, wasn't it?—A. I presume so.

Q. In buying oil from independent companies?—A. I suppose so.

Q. So you took them at 88 cents?—A. Yes.

Q. During the same time you charged the Chicago, Milwaukee & St. Paul $1.40, didn't you?—A. Yes; that was based on a previous cost, too.

Q. Then, in the year 1907 you increased the Central of Georgia to $1.25?—A. Yes.

Q. And the Milwaukee to $1.70?—A. Yes.

Q. Now, then, in 1907 the Central of Georgia paid you 48.4 per cent of the invoice price, didn't it?—A. I suppose so.

Q. And the Milwaukee paid you 100 per cent?—A. Yes.

Q. And the Central of Georgia used more oil per thousand miles run than the Milwaukee?—A. I don't recollect that.

Q. Very well. You can figure it out, can't you?—A. Yes.

Q. Do so, please. I want it to go right into the record here.

Mr. HUNTER. On Exhibit 413 [placing the exhibit before the witness].

WITNESS. If you will figure that out I will verify it.

Mr. HUNTER. I have got it right here.

Mr. ROSENTHAL. Show Mr. Steinbrenner how you figure that out.

(Mr. Hunter explains figures on statement to Mr. Steinbrenner.)

6607 WITNESS. They used more, but they have only been with us about three years and haven't been educated up to the point where the Milwaukee is.

Q. They used more oil per thousand miles run?—A. Yes.

The EXAMINER. What do you mean by "have not been educated up?"

WITNESS. The Central of Georgia have only been using our oils about three years and have not been educated up to the point where the Milwaukee have in the use of lubricating oils, the Milwaukee having been with us some twenty or thirty years.

Q. Now, let us get at that. The Central of Georgia had been buying their oil of independents and doing their own lubricating, hadn't they?—A. I don't know.

Q. Well, they didn't buy it of you, did they?—A. No.

Q. They must have lubricated the engines.—A. I suppose so.

Q. So they got it from somebody else?—A. Yes.

Q. They got their cost down for engine mileage to 88 cents per thousand miles run?—A. They may have paid for it in some other things.

Q. They got it down to that?—A. They got it down to 88 cents per thousand miles; yes. It may have cost them in other directions a good deal more.

Q. That is the cost that they claimed they had it down to?—A. Yes.

Q. And you accepted that?—A. We did; yes, sir.

Q. They were tolerably well educated, weren't they?—A. I don't know.

Q. You don't know?—A. No; the performance doesn't indi-

6608 cate it.

Q. The performance is with your oil. Now, you took their passenger service also for less money than you took the Milwaukee?—A. Based on a previous cost; yes, sir.

Q. Previous cost to the Central of Georgia, by their own performance, in using their own oils or that they bought of somebody?—A. I suppose so.

Q. Now, you say you took the Milwaukee's contract in 1898, or 1899, which was the first year, at $1.40?—A. I think that was the guaranty of that contract.

Q. 15 cents for passenger cars and 8.5 cents for freight cars?—A. Yes.

Q. That was 90 per cent of the previous cost?—A. No.

Q. Oh, it wasn't?—A. No; it was away beyond that.

Q. Oh, it was away beyond that?—A. Yes.

Q. When did you first take their contract at 90 per cent of the previous cost?—A. Some twenty or thirty years ago.

Q. You don't know what that previous cost was, then?—A. I could tell from our records.

Q. It was the cost of the oil to the Milwaukee road buying it from you, wasn't it?—A. No.

Q. Didn't they buy it from you?—A. No; they bought from others.

Q. Twenty or thirty years ago, that was?—A. Yes.

Q. They bought it from Standard companies, didn't they?—A. I don't know.

6609 Q. You don't know where they bought it?—A. No.

Q. They may have bought it from Standard companies?—A. They may have; yes.

Q. And you don't know what price they paid?—A. No.

Q. Or what company they bought it of?—A. No.

Q. Now, 88 cents for locomotive service on the Central of Georgia you would consider pretty cheap, would you?—A. Yes.

Q. And if that was their cost to themselves in handling their own road and buying their own oil, it was cheap, wasn't it?—A. I suppose so.

Q. So the service must have been good?—A. I doubt whether they ever got it down to that figure.

Q. That is what they claimed?—A. But we accepted it.

Q. And they claimed that?—A. Yes.

Mr. ROSENTHAL. You haven't answered his question as to whether the service must have been good.

Q. It must have been good at 88 cents.—A. It must have been cheap; that is, for lubricating oil.

Q. That is what I say.—A. It may have cost them ten times that in other directions.

Q. But you don't know that it did?—A. That is our experience wherever——

Q. Well, you don't know that it did on the Central of Georgia?—A. No; but I believe it did.

Q. But your belief is not based on any knowledge?—A. Yes, sir.

6610 Q. What knowledge?—A. My experience.

Q. Experience on the Central of Georgia?—A. On every road.

Q. Experience on the Central of Georgia?—A. I suppose they had the same experience as other roads have had.

Q. Then, from your experience, you think they were lying to you when they said 88 cents was the cost?—A. Not necessarily; no.

Mr. ROSENTHAL. That is not what he said before.

Q. Now, why is it that you charge the New York Central 100 per cent and the Pennsylvania 50 or less?—A. They get the performance out of the oils; they get the service out of them.

Q. I thought you said the Pennsylvania was bad service.—A. What do you mean by "bad service?"

Q. They use too much oil.—A. They do.

Q. Isn't it a fact that the New York Central uses more oil than the Pennsylvania?—A. No.

Q. Than the Pennsylvania Company, west of Pittsburg?—A. No.

Q. Isn't it?—A. No.

Q. Have you figured on it to see?—A. I know it.

Q. You do know it?—A. Yes.

Q. At the present time you are speaking about?—A. Any time.

6611 Q. In previous years did it?—A. Yes.

Q. Take 1897; did it?—A. I think you will find they made less miles to the pint.

Q. Are you sure of it?—A. I'm quite sure of it.

Mr. CRAWFORD. Who made less miles to the pint?

WITNESS. The Pennsylvania as compared with the New York Central.

Q. That is what I am asking you. Which company do you claim uses the most?—A. The Pennsylvania.

Q. The Pennsylvania Company.—A. I am speaking of the system.

Q. I am speaking of the company west of Pittsburg.—A. The Pennsylvania Company; I think they did.

Q. Used more oil?—A. Yes.

Q. Now, Mr. Steinbrenner, the New York Central paid 100 per cent of the invoice price in 1897, didn't it?—A. 1897?

Q. Yes.—A. No. The New York Central in 1897?

Q. Yes.—A. (After referring to Government exhibits.) For the year ended August 31, 1897, they paid 100 per cent.

Q. Yes. Then, the Pennsylvania Company west paid 40.2 per cent?—A. For what year?

Q. 1897.—A. That was the first year under the contract and they hadn't used it very long.

Q. Did they pay that? that is the question.—A. I suppose so.

Q. Now, if they had both paid the full price, it would have
6612 cost the Pennsylvania lines west $2.10 per thousand locomotive miles, wouldn't it?—A. If the guaranty was up to that point and they had met it, they would have paid the full invoice price.

Q. And the Pennsylvania Company for the year used less oil than the New York Central?—A. Not necessarily.

Q. You so show by your statements, don't you?—A. I don't know; I haven't figured out the mileage.

Q. A few moments ago you said you knew it, didn't you?

Mr. ROSENTHAL. He said he hadn't figured out the mileage.

Q. A few moments ago you said the Pennsylvania didn't use——

A. As much oil?

Q. Or used less oil than the New York Central.

Mr. ROSENTHAL. He said the Pennsylvania system.

Mr. KELLOGG. No, he said company.

Q. Are you willing now to admit that the Pennsylvania Company west did use less oil than the New York Central in 1897?—A. No, not until I figure it out.

Q. Figure it out and see.—A. You figure it out and I will verify it.

(Witness refers to papers placed before him by Mr. Hunter.)

Q. Have you got that figured out?—A. That seems to be the result.

Q. Please give the figures to the stenographer.—A. I have simply accepted these [referring to figures on paper].

6613 Q. I want them stated concretely in the record.—A. The Pennsylvania Company cost, 15 months, February 28, 1897, $2.10 per thousand miles for locomotives.

Mr. ROSENTHAL. Is that for 15 months?

WITNESS. For 15 months. For the New York Central, 12 months ended August 31, 1897, $2.41. During that year the New York Central were consolidating with a lot of other lines and they did not make as good a record as they should have made.

Q. Well, it is a better record than they are making now, isn't it?—A. Yes. They have added larger engines since then.

Q. And it is the best they ever made, except one year, that you know of, isn't it?—A. I don't know.

Mr. ROSENTHAL. You mean the best in dollars and cents, or the best all things considered?

Mr. KELLOGG. The lowest cost per thousand miles.

WITNESS. It is the lowest but one year.

Mr. KELLOGG. Yes; that is what I asked you.

WITNESS. But just at that time all roads were putting in larger power, and none has made in the last ten years as good as they did prior.

Mr. ROSENTHAL. You mean as good a record, or as good a cost per mile?

WITNESS. As good a cost per mile.

Q. The Pennsylvania Company has increased its equipment, too, hasn't it?—A. Yes.

Q. All companies have?—A. Yes.

Q. So the comparative increase is no greater on the New
6614 York Central than it is on the Pennsylvania?—A. I think the Pennsylvania's cost has gone up since that year, in proportion, probably greater.

Q. They still get their oil, excepting last year, at practically the same price?—A. No, they made an improvement in the last year.

Q. Except the last year, I mean?—A. No, they have made some improvement.

Q. Now, as a matter of fact, Mr. Steinbrenner, there are no Standard Oil directors on the Pennsylvania road, are there?—A. I don't know of any.

Q. There are on the New York Central?—A. I don't know of any.

Q. You don't know of any?—A. No.

Q. You don't know whether William Rockefeller is a director in the New York Central?—A. No.

Q. There are none on the Buffalo, Pittsburg & Rochester?—A. I don't know of any.

Q. None on the Central of Georgia?—A. I don't know of any.

Q. And none on the Southern Pacific?—A. None that I know of.

Q. But there are on the Milwaukee?—A. I don't know of any.

Q. You don't mean to say that there are not?—A. I don't know.

Q. Don't you know that Mr. Rogers is a director in the
6615 Milwaukee road?—A. No, sir.

Q. You don't know that?—A. No, sir.

Q. Don't you know Mr. William Rockefeller is?—A. No, sir.

Q. Mr. C. W. Harkness?—A. No.

Q. You don't know that?—A. No.

Q. Never heard anything about it?—A. No.

Q. You read the complaint in this case on the Galena-Signal subject?—A. Yes, several times.

Mr. ROSENTHAL. You don't believe everything you read in the complaint.

Q. Didn't you read in the answers that they were directors in those roads?—A. I didn't make the answer.

Q. Well, don't you know the answer does admit it?—A. No.

Q. Did you ever see the answer?—A. No.

Q. Now, Mr. Steinbrenner, in response to Mr. Rosenthal, you have been testifying about the contract with the Pennsylvania lines for 1907, and you are going to produce those contracts so that we can see when they were made?—A. Yes.

Mr. ROSENTHAL. We are going to have Mr. Steinbrenner on the stand from one to two weeks before we get through with him, so you will have ample opportunity to cross-examine him again.

Q. Will you please produce a similar statement for the Pennsylvania lines for the years ending March 31, 1907, and March 31, 1908, similar to the ones you have furnished in evidence here? All
6616 the Pennsylvania lines, I mean.—A. East and west?

Q. East and west, the three separate companies, or three separate statements, the same as you furnished before.—A. All right.

(A recess was here taken until 2 o'clock p. m.)

6617 EDWARD W. McKENNA, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. ROSENTHAL:

Q. What is your full name?—A. Edward W. McKenna.

Q. Where do you live?—A. Chicago.

Q. What is your occupation?—A. I am second vice-president of the Chicago, Milwaukee & St. Paul Railroad.

Q. With headquarters at Chicago?—A. At Chicago; yes, sir.

Q. How long have you been vice-president of that road?—A. Since September, 1905.

Q. In a general way, what are your duties as vice-president?—A. I have charge of the operating department and construction of lines east of the Missouri River.

Q. How long a railroad experience have you had?—A. Since 1862.

Q. Can you give us in a general way your railroad history?—A. I commenced in 1862 as a messenger boy on the Pennsylvania Railroad in Pittsburg, and have been telegraph operator, train dispatcher, general superintendent's secretary, superintendent, general superintendent, assistant to the president, and second vice-president.

Q. With what railroad were you connected, preceding your connection with the Milwaukee & St. Paul?—A. I was with the

6618 Great Northern in 1904—the last half—and until November, 1905.

Q. In what capacity?—A. General superintendent. Previous to that I had been in the service of the St. Paul road for about seven years.

Q. In what capacity?—A. As division superintendent and assistant general superintendent.

Q. With headquarters where?—A. At Milwaukee.

Q. And immediately preceding that?—A. I was in the service of the Pennsylvania lines west of Pittsburg.

Q. In your long railroad experience have you ever come in contact with Galena-Signal oils?—A. Yes, sir.

Q. With what different roads?—A. First with the Chicago, Milwaukee & St. Paul, and during my time with the Great Northern Railroad I made a contract with the Galena company for lubrication.

Q. In your experience have any of the roads which you have been connected with used other oils for lubrication than the Galena oils?—A. Yes; during my service with the Pennsylvania lines they used other oils.

Q. So you have had experience with Galena oils and with other lubricating oils?—A. Yes; other oils bought on the market.

Q. Are you familiar with the form of the contract that the Galena-Signal Oil Company uses?—A. Yes, sir; generally.

Q. Generally speaking, what is that contract?—A. The Galena Oil Company undertakes to furnish lubricants for locomotives
6619 (valve and engine oil), passenger cars, and freight cars at a guaranteed cost per thousand miles.

Q. Is it regarded by railroad men as a contract for the sale of oil, or as a contract for lubrication?—A. It is a contract for lubrication.

Q. Now, I wish you would tell us just what you mean by that.—A. Take the case of the Chicago, Milwaukee & St. Paul Railroad; they undertake to furnish lubricants for the locomotives on a certain basis; the present price or guaranty, I believe, is $1.70 per thousand miles. Passenger cars, 8.66, I believe, is the guaranty now, and freight cars, 6 cents. If in the economical use of lubricants you can save anything under their guaranty, the amount thus saved is refunded to the railway company. If there is an extravagant use of lubricants and the guaranty is overrun, I presume it is at the loss of the Galena Oil Company.

Q. Then, as I understand, that which you purchase is lubrication?—A. It is a contract for lubrication.

Q. Does the price per gallon named in the contract make the slightest difference to the railroad company?—A. I can't see how it would. It is used as a means of making up invoices and settling yearly differences. The fact remains, however, that whatever the price of oil per gallon might be, it is a contract for lubrication, and settled upon the result of the performance of the lubricant.

Q. Unless, of course, the railroad company falls below the guaranty; then it gets the benefit of the invoice price named in the contract?—A. Of the invoice price, yes, sir.

6620 Mr. KELLOGG. I wish to object to any testimony of this kind, as to the substance of the contract, because the contract is the best evidence.

Q. Have you ever had any experience with any other companies offering to lubricate your railroad?—A. No, sir; we never have had such an offer, to my knowledge.

Q. Are you able to point out the advantages to the railroad company of this guaranteed cost system as used by the Galena Signal Company?—A. Yes, sir.

Q. I wish you would do so, please.—A. The contractual relations between the St. Paul road and the Galena Oil Company commenced in 1883. I think the first contract was dated in 1884. It was on a basis of a guaranteed saving of 10 per cent. It has been continued from that time until the present. There was a series of contracts, varying somewhat in detail, but of the same general tenor. And the effect has been to make, in the consumption of car oils, a constant reduction in cost to the railway company. In the matter of engine oils, the economy has not been so great, because changes of conditions have come in. I think analysis would disclose that it is costing just about as much now to lubricate a locomotive as it did twenty-five years ago; but the number of bearings, and the weight and the services demanded of the locomotive have increased very much.

Q. That is, as I understand you, notwithstanding the increase in the weight of the equipment and the capacity of the power, the
6621 cost of lubrication per thousand locomotive miles in just about the same as it was twenty years ago?—A. Just about the same; although the number of bearings and the area of bearing surface to be lubricated has probably doubled.

Q. You spoke of your first contract being a saving of ten per cent. What do you mean by that?—A. The Galena Oil Company undertook to lubricate the engines and cars of the road at ninety per cent of the previous cost—which would effect a saving of ten per cent to the railway company.

Q. At ninety per cent of the previous cost to the railway company, you mean by that?—A. Yes, sir.

Q. Now, have you given us all of the general advantages that occur to you, that accrue to the railroad company in connection with this form of contract?—A. There are advantages beyond those stated in the mere cost of lubrication. Before the discovery or introduction of the Perfection valve oil, which was one of the Galena's products, we used tallow for lubricating valves. The deterioration of the frictional parts, in the cylinders and steam chests, represented a very great item of expense, on acount of the animal acids in the tallow. And then, in respect to car oils, the reduction of heated bearings and the reduction of rolling friction, due to a better lubricant, has been so markedly successful that it is generally acknowledged throughout the railroad world.

Q. Prior to the use of Galena oils, I wish you would give us a little something on the history of railroad lubrication, if you can,
6622 beyond what you have just given us. You used tallow oils?—A. Yes, we used that only for valve lubrication. We used lard oil, paraffine, and mixtures of paraffine for the frictional parts of locomotives—several combinations; used petroleum, and various mixtures gotten up by various people who sold lubricants, and they were bought on the open market, from anybody and everybody, sometimes very cheaply. In 1883 the St. Paul road bought oil for 6 cents a gallon—lubricating oil.

Q. In those early days, before you dealt with the Galena Signal Company, then, as I understand you, you went upon the market and bought your oil wherever you could, bought your lubricants wherever you could. And what was the effect of that method so far as uniformity of lubrication was concerned?—A. The records that we have kept since the change was made disclose that lubrication has been of a high order, particularly in the reduction of heated bearings and in the general reduction of rolling friction, increasing the capacity of the locomotive to perform the service for which it is intended.

Q. How important in the operation of a railroad is this question of lubrication?—A. It is one of the most important questions we have to deal with.

Q. Why?—A. Simply because improper lubrication would add to the expense of operating a railroad very considerably; and in our

passenger train service it directs the attention at once to delays to passenger trains, governmental fines for late mails, and not infrequently—well, I don't know of any case where a journal was burnt off a passenger train, but I know of many cases where
6623 journals were burnt off and freight trains wrecked on account of poor lubricants.

Q. Was one of the reasons why, in the early days of railroading, there were more wrecks than now the fact that lubrication was not then as good as it is now?—A. Well, there certainly were wrecks caused by burnt journals, which was due, among other things, to inferior lubrication; and I think the percentage of accidents, based on mileage, has been very largely reduced. That would be quite an essential factor in bringing about that result.

Q. Improper lubrication, then, means a possible disturbance of the operation of the entire railroad system, does it not?—A. Yes, sir.

Q. What do you mean by a "hot box"?—A. That is when a journal becomes heated by improper lubrication, overload, foreign matter getting into the oil box, producing attrition, friction.

Q. And what is commonly called a hot bearing is the broader term of the two, is it?—A. "Hot box" is the usually accepted term.

Q. Every hot box has a hot bearing, I suppose?—A. Yes; the box is heated from the overheating of the journal, and the heat is communicated from the journal to the box.

Q. Generally speaking, has the number of hot boxes or heated bearings been materially reduced during the last twenty years on your system?—A. Very decidedly; yes, sir.

Q. I wish you would give us some idea, if you can, aside
6624 from the mere question of operation, what expense, if any, there is attached to the prevalence of hot boxes or hot bearings?—A. The destruction of the brass bearings would cut quite a figure.

Q. What do you mean by that?—A. A hot bearing or hot journal usually produces deterioration of a brass, and it melts and it is burned up. Instead of giving the miles of service it should ordinarily, if it is properly lubricated, you may lose it in half an hour.

Q. And how much cost per bearing does that involve?—A. At the present time the average bearing is worth about $1.80. Its scrap value would be probably 80 cents. The loss on a bearing that is burned out, from the causes stated in your question, would represent a loss of about a dollar. That is only an incidental loss, however. The loss caused by hot boxes—it means when a hot box is discovered that the train must be stopped, the box must be looked into and doctored there, unless it is sufficiently cool to get it to a station, to get in out of the way. It makes delay in the work. It runs into waste of fuel, overtime for trainmen, and all of the bad elements which come into the confusion in operation that is induced by that.

Q. And of course the stoppage of one train for any material length of time means a disturbance of that whole division, does it not, in the operation of those trains?—A. Yes, sir.

Q. Have you compiled, or caused to be compiled under your direction, a statement showing the number of hot bearings on the
6625 St. Paul road during the last ten or fifteen years?—A. That is a standard report that is made by the mechanical department. The directions for compiling it were given before I had anything to do with the matter, and made monthly, or at frequent intervals, in order to give us comparative knowledge as to the performance in that respect.

Q. You mean that is part——A. Is part of our statistics.

Q. As made by your statistical system?—A. Yes, sir.

Q. You keep now, and have for a great many years, statistics on the number of hot bearings?—A. Yes, sir.

Q. You have such a table with you, I think, have you not?—A. Yes, sir.

Q. What years are covered by that statement?—A. From 1892 until 1907, both years inclusive.

Q. Will you explain the scheme in the making up of this table?—A. A record of all the hot boxes is made by reports to the mechanical department, and, at the end of each month, after the car mileage is ascertained, the number of hot boxes is figured into the car mileage, to give the number of miles per car run to each hot journal.

Mr. KELLOGG. Let's see the statement that you are testifying to.

(The witness hands paper to Mr. Kellogg.)

Q. In 1892 your record shows how many hot bearings?—A. 8,109.

By Mr. KELLOGG:

Q. You are testifying now solely from that paper, are
6626 you?—A. Yes, sir.

Q. And you have no personal knowledge of this?—A. No; I didn't see any of those hot boxes.

Q. They are, I suppose, turned in in the regular course of business?—A. Yes.

Q. How are those reports made to the office?—A. To my office?

Q. Yes.—A. They come monthly. They are sent to me every month from the shops at Milwaukee.

Q. And there is a record in the Milwaukee office of those?—A. Oh, yes; a record in detail from each division of the road.

Mr. ROSENTHAL. Now, of course we stand ready to make proof of that detailed record if there is any objection——

Mr. KELLOGG. Oh, no; I have no objection.

Mr. ROSENTHAL. No objection so far as that is concerned?

Mr. KELLOGG. No. I just wanted to know if it was in the record of the railroad, that is all.

Mr. ROSENTHAL. Yes; I understand. But in the development of statistical proof of this general character, I assume we will adopt the same rule that we adopted when your proof went in.

Mr. KELLOGG. Oh, certainly. Make it as short as you can, and we won't object to it.

Mr. ROSENTHAL. Subject to verification, we may at times put in secondary evidence.

Mr. KELLOGG. Oh, certainly. You give us access to any papers we want.

Mr. ROSENTHAL. Certainly.

Direct examination resumed, by Mr. ROSENTHAL:

6627 Q. 8,109 hot bearings. And the mileage?—A. 337,403,285 freight car miles.

Q. And the number of car miles to one hot box?—A. 41,608.

Q. That is to say, one freight car would run 41,608 miles with but one hot box?—A. One hot box; yes, sir.

Q. And what was it in 1906?—A. 5,912 hot bearings, 476,729,609 car miles; an average of 80,569 miles to each hot bearing.

Q. And in 1907 the average number of car miles to one hot box was what?—A. 64,097.

Q. Is there any reason that you know of for the difference between 1906 and 1907?—A. Yes, sir.

Q. Tell us what it was, please.—A. In the year 1907 we built at the West Milwaukee shops 4,000 new cars, which were equipped with steel axles, and the increased number of hot bearings was due to the fact that it took some time to get those bearings to a burnished surface so that they would cease heating. That reduced the average for that year.

Mr. ROSENTHAL. I offer in evidence defendants' Exhibit 13.

Q. And those figures that you have just testified to are figures taken from the defendants' exhibit which I have just had marked "13"?—A. Yes, sir.

Q. Have you compiled a similar table with respect to hot bearings under passenger cars for the years 1892 to 1907?—A. That is the same as the freight car statistics; it is part of our ordinary statistics.

Mr. ROSENTHAL. Please mark that "Defendants' Exhibit 14."

6628 (The paper was so marked.)

Q. That was compiled in the same way?—A. In the same way; yes, sir.

Q. And in the year 1892, as shown by that table, what was the number of hot bearings, for passenger cars, on the Milwaukee system?—A. 1,221.

Q. And the mileage?—A. The passenger car mileage was 37,825,425.

Q. And the car miles to one hot box?—A. Average passenger car miles to one hot box, 30,979.

Q. And what was it in 1907?—A. 205 hot bearings in 68,902,902 passenger car miles, or an average of 336,112 miles to one hot box.

Q. So that a passenger car now runs on an average 336,112 miles to one hot box, as against 30,979 in 1892?—A. Yes, sir.

Mr. ROSENTHAL. I offer in evidence defendants' Exhibit 14.

Q. Do you in any way attribute the decrease in the number of hot boxes on passenger and freight cars on your system to the use of Galena-Signal oils?—A. Well, it is an important factor, not the whole factor, in respect to the better performance. It is better oil; they use better methods, better ways, better supervision; but the

constant quality of the Galena oils as compared with the lubricants that preceded them, and their method of education in the use of the oils, has started this in direction of the results which we are now getting.

Q. As I understand it, since 1892 the St. Paul system has continued to use Galena oils?—A. Yes, sir.

Q. Down to the present time?—A. Yes.

Q. And no others?—A. And no others.

6629 Q. You spoke of their system of education. What do you mean by that?—A. The experts that they send out to teach, first, our foremen, and then the men, in the economical application of oil.

Q. I wish you would go into that a little more in detail, and tell us just how that is done.—A. They travel about with the foremen of car repairs and the various assistants——

Q. That is, the Galena expert travels about?—A. Yes; with these different men, and shows physically the application of oil, the condition of the box, when it requires oil and when it does not. It was notoriously the fact, before these methods were adopted, that it was usual at every inspection point for the car inspector to throw the oil box open, take up the lid of the oil box, and throw in a little oil, whether it needed it or not, which represented wasteful extravagance. The Galena experts educated, first, our men, who in turn became experts, and we got a line on the economical use of oil.

Q. Has that education been a gradual education, extending over these years?—A. Yes; a constant supervision and detail of the economical use of oil in connection with all other supplies used on a railroad.

Q. What relation is there between lubrication and waste—the use of waste?—A. The waste in the oil box?

Q. Yes, sir.—A. The waste is packed about the journal and the oil cellar in the box holds the oil in suspension so that it is

6630 picked up by the revolving journal—the lower half of it—and carried around under the brass, so as to reduce the friction between the brass, which carries the weight of the load, and the journal.

Q. Do these Galena-Signal experts also educate your men with respect to the economical use of waste?—A. Yes, sir.

Q. What methods can you tell us of that they have introduced in that connection?—A. I couldn't go into that in detail, because the education of the St. Paul road was complete before I got there. I know what the practice was on other roads.

Q. Well, what was it in that regard? Are you familiar with that?—A. Well, it was the eternal saving of waste and oil and everything that went with the intelligent use of materials that go to produce lubrication.

Q. Does an increase in the efficiency of lubrication represent any saving in the cost of coal?—A. Oh, yes.

Q. What can you say about that?—A. I couldn't give you any data in fact, except the great big proposition that the rolling friction

of a train is reduced by perfect lubrication, or a high-class lubrication, and it is retarded by inefficient lubrication. That would economize, in the degree that the lubrication was bad, the power of a locomotive to draw a load, and that is the only thing a railroad can make any money with.

Q. So that, as I understand you, efficient lubrication means, first, a decrease in repairs; secondly, a saving in brasses; third, a saving in waste, and fourth, a saving in coal?—A. Yes, sir.

Q. And, fifth, an increased general efficiency in connection
6631 with the operation of the entire system?—A. Oh, it goes farther than that. It is a saving of delays, which means overtime and overwork, accidents, and it is a prime essential in the proper operation of a railroad to have efficient lubrication. It means also safety to life and property.

Q. And I understand you to say that during the years that the Galena Signal has been lubricating the railroads that you have been in contact with, there has been a constant annual increasing efficiency, due in part to the use of that lubricant?—A. Well, this statement (Exhibit 14) does not show it as continual. The tendency, one year with another, always is in the direction of better results, although in some of these years here we dropped back in respect to both passenger and freight cars. The general trend has been in the direction of higher efficiency and lower cost for lubrication.

Q. In understand you to say that it has been the constant aim of experts employed by the Galena Signal to teach your employees the more economical use of lubricating oils?—A. Yes, sir.

Q. And do they continue to do that, even where the railroad has gotten below its guaranties?—A. Yes, sir.

Q. Can you conceive of any reason why that is done?—A. I presume, from their point of view, to be able to show the excellence of their system of lubrication.

Q. Yes, sir.—A. From our angle of view, which we persist in watching, the economical application of oil, to get our lubrication as cheaply as possible.

Q. That is, you have been so educated, by these years of contact with these experts?—A. Yes, sir.

6632 Q. And by the beneficial results secured from year to year?—A. Yes, sir; that is the purpose of keeping these statistics, so we can keep a record with ourselves of what our performance is; and, if it goes wrong in any respect, then we reach back to where the trouble lies and attempt to correct it.

Q. What authority do you give these Galena experts, when they come upon your system, in their relation with your employees?—A. They have *carte blanche* to go to any part of the railroad and do business with any person connected with it; open up oil boxes or records. We realize they are working to our mutual advantage, and we give them all the authority that is necessary to go into all the details of our methods of lubrication.

Q. Generally speaking, they are authorized to instruct your em-employees in the use of lubricants?—A. Yes, sir.

Q. And does it ever happen that an employee refuses to pay any attention to the Galena expert?—A. I never heard of such an instance.

Q. In connection with your statistical department do you keep any track of the amount of oil used by a given engineer, for example, in the operation of his locomotive?—A. Yes, sir.

Q. Tell us a little about that, please.—A. All stores—oil, waste, coal—are charged to locomotives, and the performance is very carefully checked; in fact, we have a system of averages. A locomotive of a certain type should make so many miles to a pint of valve oil, or a pint of engine oil; she should haul so many tons of freight with so many tons of coal. And the issuance of stores to that loco-
6633 motive is checked, and the record of the man running it is checked also.

Q. Suppose an engineer is using oil extravagantly; what do you do about that?—A. He is called upon for an explanation. If he can not make a satisfactory explanation, sometimes he is disciplined by getting record marks, and if he is extravagant in supplies, such as to indicate a want of desire or want of ability to use supplies economically, he is retired, probably, to the fireman's side.

Q. So the engineer knows that close tabs are being kept upon him in that regard?—A. Oh, yes, sir. That has always been true.

Q. And I suppose you frequently do all that you can to inculcate the spirit of competition between your employees in that regard?—A. Yes sir.

Q. What would you say, as a railroad man of long and wide experience, as to the general effect upon your employees of being taught the economical use of lubricating oils?—A. The general effect would be to make them careful in the use of all supplies.

Q. That is to say, it would have a strong disciplinary value, then?—A. Yes sir, very decidedly.

Q. In every direction?—A. Yes.

Q. So that even if a railroad company were not below its guaranties, as shown by the Galena Signal contracts, there might nevertheless be a strong purpose in inculcating an economical use of its oils?—A. Oh, yes, the very strongest reason for that always. In handling a large body of men, distributed over seven or eight thousand
6634 miles, the principles of economy, in every respect, are constantly being pounded into them; and in any instance where a check can be kept on the use of any kind of material, a close check and an individual check, when we can get it, are kept, so as to prevent waste and put the officers of the company in a position where they can check waste and extravagance or bad performance of any kind.

Q. As a broad proposition, how much consideration should a railroad company give to the element of expense in the purchase of its lubricating oils, in so far as the mere cost of those oils is concerned?—A. As against present methods and the methods that existed before the lubrication of railroads was done in a scientific manner, I can

hardly conceive of any expense that a railroad company could not afford to go to, to get the results that we are getting to-day. If it were left to me personally to go back to the old methods, I would not assume the moral responsibility of giving up a lubricant of known value, with which we have had twenty-five years' experience, and taking up the character of lubricants that we used to purchase.

Q. As I understand you, then, a railroad company that has had the experience that the St. Paul, for example, has had, with the use of Galena Signal Oil, if you controlled, would hesitate a long time before undertaking to use any other kind of oil?—A. Yes, sir.

Q. And that would be not only because of the constantly decreasing cost that has followed the use of those oils, but be-
6635 cause of the moral responsibility that in your judgment would attach to a change?—A. Yes, sir; the increasing reduced cost, increased efficiency, and the knowledge that we have a reliable lubricant, and the comfortable experience of twenty-five years' use of something that you know all about.

Q. That is to say, other things being equal, you would prefer to maintain the lubricant that experience has taught you you may safely use?—A. Something that we may safely rely on; yes, sir.

Q. And even if other things are not equal, so far as cost is concerned, you might still prefer to maintain the more expensive lubricant?—A. Yes, sir. To put that in another way, if a contract for lubrication were offered the St. Paul road, at a very largely reduced cost, I would not myself take the moral responsibility of instituting it.

Q. Why?—A. Simply because I would be afraid of its performance.

Q. Why?—A. I would be afraid we would go back to the old days of burnt journals, delayed trains, possibly loss of life, loss of property, and general censure and excoriation you might expect from the public, who are very critical as to the management of railroads just at this time.

Q. Since the introduction and development of high-speed trains has the question of lubrication become more important than before that?—A. Oh, yes.

Q. Just explain that to us, will you, please?—A. The greater
6636 loads per bearing, the higher speeds, have a tendency to produce attrition or friction, which would cause heating and retard motion. The service demanded of the lubricants is higher in proportion to the service demanded by locomotives, both as to weight and tractive power and speed.

Q. In your opinion, could the higher rate of speed now maintained by these express trains be continued without the use of Galena-Signal oils or some other method of lubrication equally as good?—A. Oh, yes. Animal oils could be developed that would, for guides, pins, links, give equally good service as Galena oils, but they would cost a great deal more money.

Q. Well, the question is, whether you could maintain the higher rate of speed of express trains without some oil equally as good as

the Galena-Signal—some lubricant equally as good?—A. No, sir, we could not.

Q. So, quality of lubrication has a direct connection with increased speed of operation?—A. Yes, sir.

Q. Do you have in mind, generally speaking, the total volume of lubricating oil purchased by the St. Paul system per year from the Galena?—A. No, not in gallons. It is in the neighborhood of from $95,000 to $115,000 a year, for the last few years, as I recall it.

Q. From $95,000 to $115,000 a year?—A. Yes, after the refund, the net cost to us.

Q. Suppose you were approached by some other lubricating company, with a capital stock of $60,000 and a book value, say, of $300,000, whose total annual business was $200,000, with a proposition to lubricate the entire Chicago, Milwaukee & St.
6637 Paul system; would you entertain from such a company such a proposition?—A. No, sir.

Q. Why not?

Mr. KELLOGG. That is going a long way. I don't object to most anything, but you are getting into the realm of speculation, I think, a little too far. I object to that as incompetent and immaterial.

Mr. ROSENTHAL. Your witness testified that he had made such a proposition to the New York Central road, which used three or four times as much oil as the St. Paul. I propose to show why he was turned down, and that he was not turned down for the reason that he suggested.

Mr. KELLOGG. Mr. McKenna does not know anything about that case, probably.

Q. What do you say in reply to that?—A. I would not consider such a proposition.

Q. Why not?—A. I would not consider such a proposition from that concern, because we would require, first, a guaranty at least equal to the book value of the capital stock of that concern that their oils would give as good performance as the oils that we are using.

Q. By "guaranty" you mean a bond, or something in the nature of a bond?—A. Something that would be equal to cash, so that they could make the guaranty good.

Q. What other reasons would there be?—A. There would be, from a personal angle, the feeling that we were taking up with
6638 something that we didn't know anything about and giving up something that we had had twenty-five years' experience with and knew all about—something that we could rely upon—and the unknown quantity of what might happen as the result of getting an inefficient lubricant upon the railroad in respect to loss of life and property. That embraces the personal equation.

Q. Is there anything in the question of uniformity of lubricants?—A. Oh, very decidedly.

Q. Tell us something about that.—A. I couldn't tell you anything of recent years, because we have been using only these lubricants. I imagine that if we were to introduce some of the residuum lubri-

cants—these cheap petroleum oils—that we would have all kinds of trouble in mixing them in with the quantity of lubricants we have got on our cars now.

Mr. KELLOGG. I don't believe we should go into "imagination." I think you go far enough by testifying to what you know, Mr. McKenna.

Q. So there would be great danger, in your judgment, in the use of a lubricant that was not uniform throughout?—A. Yes, sir.

Q. Have you prepared a statement showing the number of engines on the St. Paul system in 1897 as compared with 1906?—A. Yes, sir.

Q. And the total weight and increase in tractive power?—A. Yes; that was prepared by the superintendent of motive power at my direction.

6639 (A paper was marked "Defendants' Exhibit 15.")

Q. Defendants' Exhibit 15 shows how many engines owned by the St. Paul system in 1897?—A. Yes, sir.

Q. How many?—A. 841.

Q. And how many in 1906?—A. 1,080.

Q. Now, the total weight of the 841 engines?—A. 71,583,285 pounds, or an average of 85,117 pounds per locomotive.

Q. And of the 1,080 engines?—A. The total weight was 118,924,440 pounds; the average weight being 110,115 pounds per locomotive.

Q. That represents an increase in the average weight of your locomotives, from 1897 to 1906, of what per cent?—A. 29.4 per cent.

Q. Have you also estimated the tractive power of the 841 and 1,080 engines?—A. Yes. In 1897 the total tractive power was 11,868,180 pounds, an average of 14,112 pounds. In 1906 the total tractive power was 19,905,372 pounds, and the average tractive power was 18,431 pounds per locomotive; an increase of 30.2 per cent.

Q. Will you please state the relation between the increase in the number of engines and average weight of engines, average tractive power, and lubrication.—A. The natural result of the increase of weight of a locomotive and the increase of bearings would call for an increase in the cost of lubrication, normally. A locomotive of 1897—there is a difference of 240 locomotives, and those were

6640 all locomotives of large type and probably replaced what are known as 8-wheel locomotives. An 8-wheel locomotive would have 16 bearings. These locomotives, the smallest of them would have 10 bearings, and the largest 14 bearings, and the bearings in each case would be larger in area in the later type locomotives than in those which preceded them.

Q. So that it might well be, might it not, that even though the cost per thousand locomotive miles was, if you please, the same in 1907, on the St. Paul system, as it was in 1897, that those figures, standing by themselves, in view of the increase in size, weight, and tractive force, would mean nothing at all?—A. At the same price per thousand miles for lubrication in 1907, as compared with 1906, I should think——

Q. 1896?—A. 1896—I should think that would effect a very remarkable economy.

Q. You would think that the railroad company had effected a very remarkable economy?—A. Yes, because the increase should be equal to the percentage of increase of weight.

Mr. ROSENTHAL. I offer defendants' Exhibit 15 in evidence.

Q. Have you prepared or caused to be prepared a table showing the cost of lubrication of freight and passenger cars on the St. Paul system for the years 1885 down to and including the year 1907?—A. Yes, sir.

Q. Have you that with you?—A. Yes, sir.

Mr. ROSENTHAL. Please mark that "Defendants' Exhibit 16."

(The paper was so marked.)

Q. Please explain genrally the table shown in defendants'
6641 Exhibit 16.—A. It gives the total freight car mileage, amount of oil used, value of oil, cost per thousand car miles for lubrication of freight and passenger cars from the year 1885 to the year 1907, both inclusive, and the cumulative cost of lubrication of freight and passenger cars combined—average cost of both classes.

Q. In 1885 what was the total freight car mileage of the St. Paul system?—A. 215,459,302 miles.

Q. What was the total value of the oil used that year?—A. $59,822.38.

Q. On freight cars?—A. On freight cars; yes, sir.

Q. Does that represent the amount that the St. Paul system actually paid the Galena-Signal for freight car lubrication?—A. Yes, sir.

Q. And what was the cost per one thousand miles that year?—A. 27.7 cents.

Q. In 1907 what was the total freight car mileage?—A. 508,293,818.

Q. And what was the total cost to the St. Paul road for freight car lubrication in 1907?—A. $15,825.32.

Q. So that there has been a drop, in 22 years, from $59,000 to $15,000?—A. Yes, sir.

Q. And at the same time an increase in mileage from 215,000,000 to 508,000,000?—A. Yes, sir.

Q. What was the cost per one thousand miles for freight lubrication on the St. Paul system in the year 1907?—A. 3.1 cents.

6642 Q. Does that 3.1 cents represent what it actually cost the St. Paul road for freight lubrication per one thousand miles?—A. Yes, sir.

Q. And the 27.7 cents in 1885 represents what it actually cost the St. Paul system that year?—A. Yes, sir.

Q. So that you are now lubricating your freight cars, per one thousand miles, for one-ninth of what it cost you in the year 1885?—A. Just about, yes, sir; a little better than one-ninth.

Q. And that cost has been a constantly decreasing one, year by year, since the year 1885 and down to the present time, has it not, with the exception——A. With one exception.

Q. Yes.—A. The year 1890, there was a break in the line. With that exception, the cost has shown a decrease each year since the beginning of the contract.

Q. What is your present guaranty, under your 1907 contract, per one thousand miles, for freight lubrication, with the Galena-Signal Company?—A. 6 cents; that is the 1903 contract.

Q. And that is still operative?—A. Yes, sir.

Q. So that although the Galena-Signal contract provides a guaranteed cost per one thousand miles of freight lubrication of 6 cents, as a matter of fact it has only cost your road 3.1 cents per one thousand miles?—A. Yes, sir; that is the fact.

Q. Just about one-half of what your contract guaranty is?—A. Yes, sir.

Q. In 1885, what was the total passenger car mileage of the St. Paul system?—A. 28,934,204 miles.

6643 Q. What was the total value of the passenger car oil?—A. $10,065.51.

Q. That was the total cost to the St. Paul road?—A. Yes, sir.

Q. What was the cost per one thousand miles?—A. 34.7 cents.

Q. In 1907 what was the total passenger car mileage?—A. 68,804,905.

Q. What was the total cost to the St. Paul system of its passenger oil?—A. $5,778.92. That was the invoice value of the oil. It didn't cost us that much.

Q. What was the total cost per thousand miles?—A. 8.4 cents.

Q. So that from 1885 to 1907 there was a reduction in the cost of passenger car lubrication per one thousand miles, from 34.7 cents per one thousand miles to 8.4 cents per one thousand miles?—A. Yes, sir. On the basis of the mileage, the reduction in cost for lubrication was about 75 per cent—better than 75 per cent.

Q. Under your 1903 contract, which extended over 1907, what was the passenger guaranty per thousand miles of the Galena-Signal?—A. My impression is, 8.66; no, 10.66. I am not certain in regard to it; I think——

Mr. ROSENTHAL. Have you got that, Mr. Kellogg?

Mr. KELLOGG. 15.

WITNESS. Was it 15 in the 1903 contract?

Mr. KELLOGG. 15 for 1903.

WITNESS. I thought it had been reduced.

Mr. KELLOGG. 15. It has not been reduced at all, according to the statements that the Standard Oil furnished.

6644 Q. So that although the guaranty cost per thousand passenger miles, under that contract, was 15 cents, as a matter of fact the cost to the St. Paul road was but 8.4 cents?—A. Yes, sir.

Q. And this table also shows, in the last column, the average cost per one thousand miles of both the freight and the passenger car service, does it not?—A. Yes, sir.

Q. That is to say, in 1885 the average cost of lubricating your freight and passenger cars, per one thousand miles, was 28.5 cents?—A. Yes, sir.

Q. And in 1907 it was 3.7 cents?—A. That is correct.

Q. So that it is costing you just about one-ninth of what it cost you in 1885 to lubricate your passenger and freight cars?—A. On the same unit of performance.

Q. Under the 1903 contract with the Galena-Signal company, what is the guaranteed cost per one thousand miles for locomotive lubrication?—A. $1.70.

Q. Do you know whether it has actually cost the St. Paul road more or less than $1.70 per one thousand miles for its locomotive lubrication?—A. In 1907?

Q. Yes.—A. It cost more.

Q. How much more?—A. I can't recall the exact figures; I think it was $2.04; the sum of the engine and valve oil would give it to you. I think it is $2.04.

Mr. KELLOGG. $2.02 I think it is.

WITNESS. Whatever it may be. I don't recall the figures.

6645 It is about that. It is the sum of the engine and valve oil figured together. [After referring to paper in Mr. Kellogg's hands.] That is right.

Q. So that although they contract to lubricate your locomotives for one thousand miles for $1.70, as a matter of fact it has cost the Galena-Signal $2.02?—A. Yes, sir.

Q. So that the way the contract works out, as I understand it, is this: The locomotive guaranty cost in the contract as fixed by the Galena-Signal, under their experience has been demonstrated to be too low?—A. Yes, sir.

Q. And the freight and passenger guaranteed cost under that same contract has been demonstrated to be too high?—A. Yes, sir.

Q. And is one set off against the other?—A. That is the stipulation of the contract—that the saving in respect to one or two of the elements would be applied to any loss that might occur in the other.

Q. So that while they make a material saving in passenger and freight car operations, there is a material loss in locomotive lubrication?—A. Yes, sir.

Q. And under that contract, what is done is to average up the three?—A. Average up the three, and if we have gained anything it is refunded to us in cash, and if they have lost anything, it is their loss.

Q. So that, so far as the St. Paul road is concerned, under that contract, what you are really concerned with is the net result

6646 after having taken into consideration the results as shown by the operation of all three—locomotive, passenger, and freight cars?—A. Yes, sir, it is the economical result.

Q. The net economical result?—A. Yes.

Q. And if they are too high on one and too low on the other, the net result might, nevertheless, be just the same to the railroad?—A. Yes, sir. Those are adjusted from time to time in the making of new contracts. I do not believe that it is physically possible to lubricate our locomotives for their guaranty. We could not do it—well, ex-

cept let them fix a higher guaranty on locomotives and we will legislate for a lower guaranty on passenger and freight cars.

Q. Now, these results are closely watched by the railroad company, are they not?—A. Yes, sir.

Q. And having these figures, as shown by these net results, before you, when the Galena-Signal contract expires you are in an intelligent position to negotiate for a new contract?—A. Yes, sir.

Q. Based upon past net results?—A. Yes.

Q. And it is for that reason, is it not, that these Galena-Signal contracts for lubrication are constantly changing?—A. Yes, sir.

Q. Because net results as shown by the actual use of the oils are constantly changing; that is the fact, is it not?—A. Yes, sir. We take advantage of all of our own experience, as demonstrated by these statistics, and get all the information we can with respect to their contracts with other railroads, and get the very best con-
6647 tract we can, when it comes time to renew it. That is very well demonstrated in these figures.

Q. Who is it that makes the Galena-Signal contract on your system?—A. The general purchasing agent, subject to the approval of the general manager or myself. This next one will be subject to my approval.

Q. Is there any relation between the size of the journal bearings and the subject of lubrication?—A. Why, certainly; a larger journal represents a larger weight imposed, and requires a larger lubrication to cover the area.

Q. Represents a larger surface exposed for lubricating purposes?—A. Yes.

Mr. ROSENTHAL. I offer in evidence defendants' Exhibit 16.

Q. Have you prepared any table showing the difference in the size of the bearings in the cars owned by the St. Paul in 1897 and 1906?—A. No; I think not.

Q. I show you defendants' Exhibit 17, and ask you what that is?—A. This is a statement prepared by the car accountant, showing the number of cars with different size journals. I had forgotten that statement. I gave orders to have it prepared, and overlooked it.

Mr. ROSENTHAL. I offer defendants' Exhibit 17 in evidence.

Q. Defendants' Exhibit 17 covers only freight cars?—A. Freight cars; yes, sir.

Q. In 1897 your largest freight cars were of forty and sixty thousand pounds capacity, were they not?—A. Yes, sir.

Q. And what are they now?—A. All box, coal, and flat cars being built now are from eighty to one hundred thousand pounds capacity.

6648 Q. And that has brought with it an increase in the size of the journals of how much?—A. In 1897 we had 11,053 cars with a capacity of 40,000 pounds. The journal was 3¾ in diameter by 7 inches long. In 1906 this number of cars had decreased to 9,012. In 1897 there were 6,907 cars of 60,000 pounds capacity, with journals 4¼ inches in diameter and 8 inches long. This number of cars increased

to 24,840 in 1906. In 1906 there were also 1,935 cars of 80,000 capacity, with 5 by 9 inch journals; also 2,216 cars of 100,000 pounds capacity, with 5½ by 10 inch journals. That is what is reflected in the statement. There have been about 8,000 cars built since that time.

Q. Of course, increased capacity also means increased weight on the bearings?—A. Yes, sir.

Q. And therefore increased friction?—A. Increased friction and increased area for lubrication.

Q. Referring to defendants' Exhibit 16 that I have heretofore shown you, and concerning which you have testified, where you show the total freight-car mileage as being 215 million and some odd hundred thousand in '85, and 508 million and some odd hundred thousand in 1907—a freight-car mile was, of course, just the same in 1885, with lighter equipment, as a freight-car mile in 1907 was with a heavier equipment?—A. Just the same.

Q. And in this reduction of cost as shown in defendants' Exhibit 16, no account is taken at all of the increase in size or weight of the equipment?—A. No, sir.

6649 Q. That is estimated merely upon the basis of car miles?—A. The unit on which the basis of cost is figured is the same in both cases. It is the estimated cost of lubricating a freight car or a passenger car 1,000 miles; and between 1885 and 1907 the freight cars added to the equipment had more than doubled in weight, and I should imagine, after the freight cars had gone out, there was an increase of not less than sixty or seventy per cent per freight car.

Q. So that if you had taken into consideration or could take into consideration, in getting at your figures as shown by defendants' Exhibit 16, the difference in the weight of equipment, the reduction in cost would be still greater than that shown in that table, would it not?—A. Very decidedly, yes; considering the increased weight, it would not be at all surprising if the increase in the cost of oils used had been in relative proportion to the increase of mileage plus the increase of weight.

6650 Q. Mr. McKenna, do you think that the supervision of lubrication could be carried on by the railroad itself as well as now carried on by the Galena experts?—A. Yes, sir; I do. We are very glad to have the assistance of the Galena experts, but we have got a start and appreciate the economies that have already been made, and we will persist to secure still greater economies and a still less expenditure of oils. I would like to answer that question by saying that I do not believe the St. Paul road would ever be reactionary; it will not lose any ground that it has gained.

Q. That is to say, if the Galena experts were removed from the St. Paul road, you are of the opinion that you could substitute an expert service of your own?—A. Yes.

Q. I presume there is no doubt about that, but what about the cost of that to the railroad company?—A. Probably it would cost from $3,600 to $4,000 a year. You would want a pretty good man, in

a small office, with a stenographer. That would probably cover it and his traveling expenses.

Q. The Galena expert has an experience extending over more than one system, does he not?—A. Yes, sir.

Q. I mean by that that the Galena expert who is the expert on the Milwaukee system is in contact with other railroad systems?—A. Yes, sir; so I understand it.

Q. And with the other experts of the Galena company?—A. Yes, sir.

Q. Does not that, in your opinion, make such an expert a
6651 more valuable expert to a railway company than an expert would be whose services were entirely confined to one road?—A. Yes; I believe his intelligence would be broader.

Q. And to that extent his services more efficient?—A. Undoubtedly; yes, sir. At the same time I don't think he would be better.

Q. But you might not go forward as rapidly as under the supervision of the Galena experts?—A. That might happen; yes, sir.

Cross-examination by Mr. KELLOGG:

Q. Mr. McKenna, your experience in lubricating the St. Paul road extends over a period of about 25 years, from 1883?—A. That is the experience of the road, not my personal experience.

Q. Well, off and on your experience?—A. Yes.

Q. Now, during that 25 years, the general trend has been in the direction of higher and more efficient services and economies in all branches of railroading?—A. Yes, sir.

Q. In the use of fuel, hasn't it?—A. Yes, in some degree.

Q. You have inaugurated systems for saving fuel?—A. Yes, sir.

Q. For the same ton haul?—A. Yes.

Q. Competitive system between your men?—A. No, we have not got that on the St. Paul road, but we have got practically the same thing.

Q. Yes, practically the same thing.—A. We offer punish-
6652 ments instead of rewards.

Q. Well, that is sort of a competitive system—to mete out punishment. And you have inaugurated great economies in the use of fuel, haven't you?—A. Yes, sir.

Q. In 25 years, in hauling a ton of freight, you have reduced the fuel cost enormously, haven't you?—A. Well, I would hardly like to say that. I haven't any data with me, but I know the cost has been reduced on account of the advance in the art of transportation, heavier rails, heavier locomotives, heavier bridges, more heating surface, less dead weight per car.

Q. And all these economies and more efficient work have been brought around by the railroad men studying this subject and making up statistics upon it, and improving the service, the machinery, and every other branch of the service?—A. Yes, sir.

Q. The locomotives and cars are larger and better than they were 25 years ago, aren't they?—A. Yes, sir, very decidedly.

Q. The bearings are better?—A. Yes; that is, they are better in the sense of being larger, more powerful.

Q. They are better adjusted than they were 25 years ago, aren't they?—A. Oh, no.

Q. Well, now, let us see.—A. In some respects they are not as good in the matter of lubrication, because it is not possible to get as fine a burnished surface on a steel axle as it is on an iron axle, and steel axles were practically unknown 25 years ago.

Q. How many years have steel axles been in use?—A. Oh,
6653 I couldn't answer that question. There were steel axles in use 25 years ago, but they were not as common as to-day. Iron axles have practically gone out. They are all steel now.

Q. They have been for a number of years?—A. There are some iron axles. I bought iron axles, 2,500 cars, in the last 60 days.

Q. That is an improvement you have made in recent years, isn't it?—A. What?

Q. The steel axle.—A. An improvement in what regard? In its relation to lubrication?

Q. Safer railroading, better railroading.—A. It is in relation to carrying weight. It carries weight better than iron, and is also due to the scarcity of good puddling iron.

Q. It carries a greater weight with more safety?—A. Yes.

Q. Less liable to wreck, to break?—A. No; I don't believe that follows. I think they are just as liable to break as an iron axle.

Q. Then, you don't pretend to say, as Mr. Steinbrenner does, that practically the only improvement in railroad service has been in lubrication?

Mr. ROSENTHAL. I object to that. Mr. Steinbrenner didn't say that.

Q. You don't pretend to say that, do you?—A. I beg pardon?

Q. You don't pretend to say that practically the only improvement in railroad service has been in lubrication?—A. Oh, no.

Q. All branches of the service have improved?—A. Yes.

Q. And economies have been instituted in all branches of the
6654 service in 25 years?—A. Yes, sir.

Q. Very great economies?—A. Very great economies.

Q. Rates have very materially decreased in 25 years, haven't they?—A. Yes; I should say the reduction of rates on the St. Paul road is about in proportion to the reduction in the cost of lubrication. I think they are about 75 per cent lower.

Q. Yes, sir. So that to-day the St. Paul road is earning its dividends with a corresponding reduction of rates?—A. Yes, sir.

Q. The reduction in cost all through its service has been very great?—A. Yes, sir.

Q. So that you have been enabled to earn dividends on an enormous reduction of rates?—A. An enormous reduction of rates, but an enormous increase in volume.

Q. Certainly. In other words, you have been enabled to haul a ton of freight a mile very much cheaper than 25 years ago?—A. Yes, sir.

Q. And still make money on it?—A. Yes, sir.

Q. So the reduction in the cost of lubrication is only one of very many items?—A. One of the essential elements in the reduction of the cost of transportation.

Q. Now in all of these reductions in expenses and improvement in the service, what are the essential or principal ones that you can name to us now?—A. In the reduction of the elements of cost of operating railways?

Q. Yes.—A. Oh, it tends largely to higher efficiency by the increased weight of rails, increased carrying power of bridges,
6655 also larger locomotives, larger cars. I should say the largest essential element in the reduction of transportation cost was the building of a car that weighs 40,000 pounds and carries 90,000 pounds as against the car of 25 years ago which weighed 20,000 pounds and carried 20,000 pounds. The dead weight was one to one. The dead weight now is only one to two and a half.

Q. Reduction of grades?—A. Reduction of grades, reduction of curvature.

Q. Reduction of curvatures?—A. Yes, sir.

Q. Installation of better system of blocking trains, or signals?—A. Yes; expedition of movement by that; improvement of terminals.

Q. And all classes of service have been improved and the cost of carrying freight reduced?—A. Yes, sir.

Q. And the management of the road with greater care, in all its brances, than it used to be?—A. Yes. The necessity for economies has stimulated and made necessary closer inspection, closer regulation, most earnest application on the part of officers of all railroads, and we have got 25 years of experience.

Q. You train your employees in all branches of the service, do you not?—A. Yes, sir; try to; do the best we can.

Q. And pay more attention to that than you did 25 years ago?—A. Yes, sir. Sorry to say we don't get as good men as we did 25 years ago, however.

Q. That varies according to the demand for men, doesn't it?—A. It was possible 25 years ago to equip a railroad with
6656 farmer boys alongside of the road. We can't do that any more.

Q. Now, in making up Exhibit 16 you have shown the reduction in the cost to the St. Paul road in the lubrication of its freight cars and passenger cars. Why didn't you include your engines in that statement?—A. Because the locomotive and car departments of our railroad, while they are under the charge of one general head, are under separate jurisdictions.

Q. You have the information as to the locomotives, haven't you?—A. I think I brought it down with some of my papers; yes, sir.

Q. Did you give it to the defendants' counsel?—(No answer.)

Mr. KELLOGG. Will you please produce it, if you have such a statement?

Mr. ROSENTHAL. If we have it I will produce it.

Mr. KELLOGG. Will you let me see it?

Mr. ROSENTHAL. I haven't it now. I have never seen it.

Q. Where it is, Mr. McKenna? Have you got it with you?—A. I haven't got it. I should be very glad to produce it if I have. It is a statement that Mr. Crocker made out.

Mr. CRAWFORD. I haven't seen any statement on locomotives.

Q. There seems to be a disagreement between you and counsel as to where that is.—A. Well, there was such a statement brought down.

Q. That statement shows a very large increase in the cost of locomotives?—A. No, sir.

Mr. KELLOGG. I would like that statement, if you please. I want to examine Mr. McKenna.

Mr. ROSENTHAL. If we have got such a statement and want
6657 to put it in we will put it in.

Mr. KELLOGG. Well, I want it.

Mr. ROSENTHAL. There may be a great many things, Bro. Kellogg, that you will want that you will not get.

Q. Have you produced such a statement?—A. Yes, sir.

Q. Did you bring down such a statement?—A. I brought a statement that was prepared by the general purchasing agent, showing the cost of engine and valve oils, going back, I think, for eight or ten years.

Q. They show the cost of lubricating your engines?—A. Yes, sir.

Q. During the time this Exhibit 16 shows the cost of lubricating your freight cars?—A. No; it didn't go back as far as that.

Q. How far did it go back?—A. I think it went back to 1897.

Q. Have you got the information in your office showing it back to 1885, the same as this?—A. No; I think there is a break in the records. They had a fire at the West Milwaukee shops and part of the records were burned up. I think it goes back as far as our records exist.

Q. It goes back as far as 1897?—A. I think that is the year.

Q. To whom did you give that statement when you came down here?—A. I think Mr. Crawford had it; that is, it was in an envelope with a number of other papers which I brought down in order to show these statements.

Q. Will you produce such a statement to-morrow morning?—A. Yes, sir; if I can find it. I was hopeful I would get away to-night.

6658 Q. I don't think you will.—A. I hope you won't keep me here always.

Q. Now, this Exhibit 16 does not show what you actually paid for the lubrication of your passenger and freight cars?—A. It shows the actual cost.

Q. What do you mean by "actual cost?"—A. What it cost in money to lubricate a freight car and a passenger car for one thousand miles.

Q. You paid very much larger prices than these, didn't you, during every one of those years?—A. No, sir.

Q. In 1907, you state that it cost the St. Paul road to lubricate its passenger cars per one thousand miles run 8.4 cents?—A. Yes, sir; that is what the statement shows.

Q. And it cost the St. Paul road to lubricate its freight cars 3.1 cents?—A. Yes, sir.

Q. You paid, as a matter of fact, respectively, the full invoice price of what price?—A. 18 cents, I believe was the invoice price per gallon.

Q. 18 cents per gallon for both?—A. That is for car oil.

Q. For car oil, and how much for passenger-car oil?

Mr. ROSENTHAL. That is passenger-car oil.

WITNESS. That is freight and passenger car oil. The invoice prices have not changed in twenty-four years. It is 18, 28, and 48 cents per gallon.

Q. You actually paid the Galena-Signal Oil Company, then, 18 cents a gallon instead of 3.1 cents and 8.4 cents, didn't you?

Mr. ROSENTHAL. I object to that because it is an obvious
6659 misinterpretation of what the witness has stated. He never has stated that they paid 3.1 cents per gallon.

Q. What was the invoice price?

Mr. ROSENTHAL. The statement is that he paid 3.1 cents per thousand miles, Mr. Kellogg.

Mr. KELLOGG. Just wait a minute.

Q. Now, take 1907 again. Your guaranty per thousand miles run for locomotives is $1.70, isn't it?—A. Yes, sir.

Q. And you actually paid $2.02?—A. That is what it cost to lubricate a locomotive. I am assuming the correctness of your figures.

Q. Yes.—A. As my recollection serves me, that is about right.

Q. Now, that increase on the locomotive balanced the difference between the guaranty and the actual cost on the freight and passenger cars?—A. No; I think there was a small amount of refund paid to us from that.

Q. Well, the Galena-Signal Oil statement is that you paid 100 per cent of the invoice.—A. In 1907?

Q. Yes, sir.—A. That may be correct.

Q. The year ending January 31, 1907.—A. My recollection is we got a slight refund in 1907, although I may be wrong.

Q. The year ending January 31, 1907.—A. Well, it is humanly impossible for it to come out just exactly right. There has got to be a difference one way or the other.

Q. Practically you paid the full invoice price?—A. Yes.

6660 Q. So that actually you did not get your lubrication of your passenger cars for 3.7 cents per thousand miles, did you?—A. Yes; we did.

Q. Then you paid a great deal more for your——A. That is right.

Mr. ROSENTHAL. For what.

Mr. KELLOGG. For your engines?

Mr. ROSENTHAL. Certainly.

Q. Now, Mr. Steinbrenner says they don't figure each one separately, but they are all put together, the three guaranties on locomotives, passenger cars, and freight cars. Isn't that true?—A. That is the effect of our contract. If it runs behind in one feature of the guaranty and we make a saving on the other, it is averaged up. But in respect to the cost on the St. Paul road these figures are correct, and it is a matter of a great deal of interest——

Mr. ROSENTHAL. These figures as shown in defendants' Exhibit 16?

WITNESS. Yes. That is what it cost us to lubricate freight cars and passenger cars.

Q. Taking the whole together——

Mr. ROSENTHAL. Wait a moment. Let him finish his answer. As a matter of fact, it is a great deal of interest—what?

WITNESS. It is a great deal of interest to the railway company to keep those separate costs. The ultimate cost of lubrication is the entire sum we pay for all forms of lubrication. That is a gross
6661 sum. In this case it is about $21,000 for freight and passenger cars, plus an amount (that I haven't got) for locomotives.

Q. Now, the most important item is locomotives, isn't it?—A. Yes, the cost for locomotives is the greatest of the three.

Q. Why didn't you show the cost of locomotives?—A. I am not putting this evidence in, Mr. Kellogg.

Q. Now, Mr. McKenna, you paid the Galena-Signal practically 100 per cent of the invoice price for 1907, didn't you?—A. It works out that way practically, yes, sir.

Q. So that taking the three services together you actually paid the Galena-Signal Oil Company for lubricating your passenger cars, your freight cars, and your engines the full invoice price of 48 cents——A. 28 and 18.

Q. 28 and 18 cents a gallon?—A. Yes, sir.

Q. That is true, isn't it?—A. That was the collective amount.

Q. And you actually did pay them, taking the three together and averaging it, the full guaranty of $1.70 for locomotives, 15 cents for passenger service, and 6 cents for freight car service? You actually did pay that, didn't you?—A. That is what we paid, yes. That was the collective amount of the invoice, but the fact remains, Mr. Kellogg, that our cost of lubrication for freight cars and passenger cars was just as stated here.

Q. Just wait a moment.—A. There is good reason for the increased cost of lubricating locomotives.

6662 Q. I will get at that. Don't be too anxious to state something I don't ask you. You have stated that two or three times. But you admit that——

Mr. ROSENTHAL. Well, the counsel ought not to be too anxious to cut the witness's answer in two.

Q. But you actually did pay the invoice prices, taking the three together and averaging them?—A. Yes, sir; practically so.

Q. And that is what you do pay every year, is the average of the three, isn't it?—A. Oh, I beg your pardon. We have got as much of a refund as 44 thousand——

Q. You pay on an average each year, instead of paying each one separately?—A. I don't believe, with the exception of two years, we have ever paid the full invoice price. I noticed a number of years back——

Q. Now, Mr. McKenna, I asked you if they were not averaged each year—the locomotive, the passenger, and the freight service all put together.—A. No, sir; they were not averaged that way except until the 1903 contract. They used to be treated separately.

Q. Since 1903 they have been averaged that way?—A. Yes; they paid us a refund every year except 1907. Hence, it follows we never paid the full invoice price in any of those years. We have received as high a refund in the past as almost 40 per cent.

Q. When?—A. Back in the first ten years of the contract I think the refund was never less than 20 thousand a year; it ran from 20 to 44 thousand.

6663 Q. What were the guaranties in 1885, 1886, and 1887? Have you got it there?

(Mr. Rosenthal looks for papers.)

Mr. KELLOGG. Have you got those earlier years?

Mr. ROSENTHAL. I thought we had them tabulated, but I don't see them here. I think we have them scattered through other data here, Mr. Kellogg.

Q. Now, in this Exhibit 16 you have gone back to 1885, haven't you?—A. Yes, sir.

Q. When was it you say they refunded you as much as 40 per cent?—A. I can't answer that question exactly, but it was within a few years after the first contract. In 1884, I think it was, the first contract was made, covering the operations of the year 1883. I think, however, it was along in the nineties.

Q. Do you know what the prices were on which these contracts were based?—A. The prices of oil?

Q. The guaranties.—A. No; I haven't got that information before me. I couldn't recall it. I haven't got it in my memory, but I can get it for you.

Q. Will you make up a statement of the cost per thousand miles of lubricating your locomotives, a statement exactly like Exhibit 16, for the full period for which you made up this statement, of as many years as you have the records?—A. Yes, sir. I have got that statement with me. If it has been lost here I will have to go back

6664 to Milwaukee to get that data; I can't make it up here.

Q. And I want the full amount of money paid each year under the contract for the total service.—A. All right, sir.

Q. Now, I notice since 1898—oh, no, 1903 you said it was when

they commenced to average the three guaranties together.—A. Yes; the contract of 1903.

Q. Are you sure of that? Haven't they settled for many years by bunching the three together?—A. Not previous to 1903. The three elements were treated separately.

Q. Now, in the exhibit which the Standard Oil Company furnished us for 1902, they were added together.—A. Well, I may be mistaken about that, but my——

Q. In 1901——

Mr. ROSENTHAL. Mr. Kellogg, you don't permit the witness to finish the answer.

Q. Very well, finish your answer.—A. I may be mistaken about that, but my impression was that the three elements were treated separately in all the contracts which were previous to the contract of 1903. In that contract one hand washed the other.

Mr. ROSENTHAL. I think you are wrong about that, Mr. McKenna; I think you are wrong as to your date on that.

WITNESS. Well, probably I am.

Mr. ROSENTHAL. I think it was made in 1899.

Q. Ever since, and including 1899, the exhibits furnished by the Standard Oil Company show that the three guaranties were added together in the settlement with the Milwaukee road.—A. Well,
6665 I was mistaken in assuming that it commenced with us in 1903. I presume it commenced in 1899, according to your exhibit.

Q. Then, since 1899, Exhibit 16 does not show what you actually paid the Galena-Signal Oil Company?—A. It does not purport to show what we paid the Galena-Signal Oil Company. It purports to show what the cost of lubrication per thousand miles for passenger and freight cars was to the St. Paul company.

Q. A mere matter of statistics for the benefit of the St. Paul company?—A. It is more than that; it is a matter of cost. It shows one year with another what it cost to perform this service.

Q. Will you tell me how it could be the cost when you actually paid more to the Galena-Signal Oil Company?—A. Not for lubricating freight and passenger cars. We bought this oil for 18 cents a gallon. That was the invoice price. We settled the monthly invoices at that price. At the end of the year, under the provisions of the contract, we have a settlement and we either make a profit which they pay to us or we make a loss. Now, the cost of that oil, in respect to lubricating freight cars on this basis, to us was 9 and a fraction cents per gallon.

Q. What year was that?—A. In 1907.

Q. I show you the Standard Oil Company's statement to us, Exhibit 423. According to that statement, your guaranty on locomotives that year was $1.70 per thousand miles, your passenger
6666 cars 15 cents per thousand miles, and your freight cars 6 cents per 1,000 miles.—A. Yes.

Q. That is correct, isn't it?—A. Yes.

Q. Then, at that rate, the guaranteed cost for lubricating your railroad, the three classes of service, was $108,080.91, wasn't it?—A. Yes, sir.

Q. That is exactly what you paid the company, isn't it?—A. No. Now, let me get right on this.

Q. That is exactly what you paid the Galena-Signal company, isn't it?—A. Yes; $108,080, but we got $110,001 worth of oil.

Q. Very well. So that they refunded to you——

Mr. ROSENTHAL. What year is that?

WITNESS. 1906.

Q. They only refunded to you $1,920.24; isn't that right?—A. Yes, sir.

Q. So that on the three classes of service you only get refunded to you about 1.7 per cent?—A. If that percentage is figured out right.

Q. Look at that [handing witness paper]. That is apparent, isn't it?—A. Yes; that is doubtless right.

Q. Now, the guaranteed cost of freight cars that year was 6 cents, and of passenger cars 15 cents, wasn't it?—A. Yes, sir.

Q. And of locomotives, $1.70?—A. Yes, sir.

Q. And you practically paid that sum, didn't you?—A. Yes, sir.

Q. Very well. Then you didn't get your oil——

Mr. ROSENTHAL. Paid what sum?

Mr. KELLOGG. Wait a minute.

Mr. ROSENTHAL. Oh, no. Paid what sum?

6667 Mr. KELLOGG. The $1.70, the 15 and the 6 cents, and he said "yes."

Q. So you didn't get your oil?—A. We got the economic——

Q. Wait a moment. Will you please answer my question, Mr. McKenna? So you didn't get your car oil for 3.7 cents per 1,000 miles run, did you?—A. I beg your pardon, sir. We got the economic result. That oil we purchased cost the company 3.1 cents per 1,000 freight car miles.

Q. The only way you could get that was adding to the cost of your locomotive more than you really paid?—A. The whole theory of these contracts show an adjustment throughout. Their guaranty on locomotives is too low. It is not humanly possible to lubricate a locomotive on the St. Paul road for that price, and we made no protest against the cost of lubricating the locomotives.

Q. So, to try to befog some one, you bring in the cost of the freight cars and the passenger cars, and leave out the locomotives?—A. I beg your pardon; I didn't catch the first part of your question.

Q. And so, to try to befog some one, you bring in the cost of the passenger cars and freight cars, and leave out the engines?—A. I didn't leave it out. I brought a statement of the cost of the engines down with me.

Q. Well, who has done it?—A. I don't know; I haven't got it.

Q. Now, Mr. McKenna, I notice by the statements furnished by the Standard Oil Company that in 1899 you paid practically 88.1

per cent of the guaranteed cost. Will you look at their
6668 statement and see if that is correct? Of the invoice cost, I mean. Correct that.—A. I assume that statement is correct.

Mr. ROSENTHAL. What year is that?

Mr. KELLOGG. 1899.

Q. Take the percentage of refund.—A. It is 11%.

Q. And you have paid since then an increasing per cent until to-day you are paying 100% of the invoice price?—A. About 99% last year, according to the figures you gave me; 99 and a fraction.

Q. That is 1906; I am speaking of 1907.—A. Yes; it is practically working out that.

Q. 100%. Now, about what per cent of the cost of lubrication is your locomotive lubrication?—A. I should say between 60 and 70.

Q. And what per cent is your passenger?—A. I want to correct that last answer, Mr. Kellogg. Our locomotive lubrication, I guess, was nearer 80%.

Q. Nearer 80%?—A. Yes. I think it is about 80, 15, and 5.

Q. About 80, 15, and 5.—A. Yes; that is about correct.

Q. So that the cost of lubricating your engines is about 80% of the total cost of lubricating the road?—A. Yes, sir.

Q. And the 15% is the freight car and the 5 the passenger car?—A. Yes, sir.

Q. So that if your cost of lubricating your engines has very largely increased, that is the most important item, isn't it?—A. Yes,
6669 sir. That is due to the increased load on the drivers. We added to our locomotive equipment last year about 120 locomotives of the largest types.

Q. I notice that the cost of lubricating your locomotives has also very largely increased?—A. That was to be expected.

Q. And it has increased as much, practically, as the weight of the locomotives, hasn't it, in ten or eleven years?—A. I should imagine that it would increase in about the same ratio. We have always been able to check supplies on locomotives and keep a close and accurate check, and if we are able to lubricate locomotives now at a less cost, considering the difference in weight, than we did 25 years ago, it is a manifest improvement.

Q. Isn't it a fact that the amount of oil used in the lubrication of locomotives does not increase in proportion with the weight of the locomotives?—A. You ask me if it is not the fact?

Q. Yes.—A. I have not stated it as a fact. Can you?

Q. Your own records show that the increase in the amount of oil is not as great as the increase in the weight of the locomotives.—A. That might result from increased economies, better methods. I should say that the increase would be in ratio to the weight and the bearings to be lubricated, other things being equal.

Q. Take a locomotive that weighed 100,000 pounds; if it increased in weight to 110,000 pounds, you think that there would be ten
6670 per cent increase in the use of oil, do you?—A. I think there would be that relative increase, everything being equal, the

locomotive being in the same service. If it continued in the same service it would require ten per cent more material for lubrication.

Mr. ROSENTHAL. Providing the bearings were increased in size ten per cent?

WITNESS. Well, if they didn't increase in relative size it would call for more lubrication.

Q. Has there been no improvement in the engines in the last ten years, in the bearings?—A. No, I can't recall any particular improvement. We had just as good driving brasses and as good main-rod brasses 25 years ago as we have to-day.

Q. Hasn't the Baldwin Locomotive Works made improvements in their bearings in the last twenty years?—A. There have been new chemical compositions introduced which have increased the hardness of the bearings so that they wouldn't depress under the load. We used to use brass, but now we use bronzes, which results in greater hardness, but there isn't any increase in strength over what there was 25 years ago. To secure increased hardness was the essential reason for adopting the new material.

Q. And it would carry a heavier weight with less lubrication, would it not?—A. No, I imagine not. That is in the realm of speculation.

Q. You don't know whether it would or not?—A. No.

(An adjournment was here taken until the morning of Tuesday, May 26, 1908, at 10.30.)

6671 ROOM 722 CUSTOM-HOUSE, NEW YORK CITY,
May 26, 1908—10.30 a. m.

The hearing was resumed before the special examiner, Hon. Franklin Ferriss, at the above time and place.

Present: On behalf of the petitioner, Mr. Frank B. Kellogg and Mr. J. Harwood Graves; on behalf of the defendants, Mr. Moritz Rosenthal, Mr. John G. Milburn, Mr. Frank L. Crawford, and Mr. W. Cleveland Runyon.

EDWARD W. MCKENNA recalled, and his cross-examination resumed, as follows:

By Mr. KELLOGG:

Q. In 1885 and a few subsequent years, when you say the cost of lubricating was very high, there was great extravagance, was there not, in the use of lubricating oils?—A. Not on locomotives.

Q. On cars, I am speaking about now.—A. There was on cars, yes, sir.

Q. Your statement only refers to cars?—A. Yes, sir.

Q. There has not been the improvement in locomotives that there has been in cars?—A. No, for the reason that the use of stores on locomotives was always carefully checked.

Q. That is, the railroads themselves, in the early days, checked the use of stores on the locomotives more carefully than on the cars?—A. Yes, sir.

6672 Q. And on these cars the men had practically a free hand—all the free oil they wanted?—A. Yes, sir.

Q. And they dumped it into the boxes and every way?—A. Yes; it was the rule at all inspection points for the car inspector to come along, knock the box lid open, and drop a little oil in.

Q. At the present time the men don't have any free oil, do they, on the cars?—A. Oh, they have sufficient oil for lubrication purposes, but they use it intelligently; they don't put it in unless it is needed.

Q. But the cars are practically lubricated by the use of the oil in the waste. They don't dump oil into the boxes as they used to, do they?—A. Whenever it is necessary they add oil, yes, sir.

Q. Well, they don't as a rule pour oil into the boxes, as they used to?—A. No, not at the intermediate inspection points. At the principal termini of the railroads, when a car is starting on its journey it is looked over, and when it is put on the repair tracks it is put in good shape, and the wasteful use of oil that occurred back 25 years ago doesn't exist now.

Q. You use better waste now, don't you? You used to use cotton waste, didn't you, a good many years ago?—A. Yes, and we do yet to some extent.

Q. You use a good deal of wool waste now, don't you?—A. Yes.

Q. More than you used to?—A. Yes.

6673 Q. It is most all wool waste now, isn't it?—A. That is my opinion; yes.

Q. And wool waste is very much better than cotton waste?—A. Yes.

Q. Because cotton waste packs down and doesn't hold up against the bearings?—A. I believe that is the reason why it is considered better.

Q. And the capillary attraction is greater in the wool waste?—A. I believe that is it.

Q. Now, the use of the wool waste gives better lubrication and uses much less oil than the cotton waste, doesn't it?—A. I am not prepared to answer that question.

Q. You don't know that?—A. I don't know.

Q. Isn't it a fact, now, that the waste is put in the oil and carefully stirred, and then taken out and the oil allowed to drip out of it, so that there is no waste of oil?—A. That is when waste is taken from the boxes?

Q. No, when it is first saturated with oil.—A. I don't know.

Q. You don't know how that is done?—A. No.

Q. You are not familiar with the details of handling the oil?—A. No, not that particular detail.

Q. Now, you don't pretend to say that these savings and these economies in the use of oil would not have been instituted and carried on by the railroad men themselves, do you?—A. No, I don't. The original relation with the Galena Oil Company to the railroads pointed the way.

Q. I don't understand that.—A. I say the original relation
6674 of the Galena Oil Company to particularly the St. Paul road pointed the way in which these economies might be had. And the economies which exist to-day—it has been a constantly growing economy all these years, owing to a more intelligent supervision of the matter of lubrication and the application of lubricants.

Q. Both by the railroad company and the Galena-Signal men?—A. Yes, sir.

Q. If you hadn't had the Galena-Signal men to point the way, the railroad men would have done it themselves, wouldn't they?—A. They probably would have found it out, found out that there was an element of waste there that must be stopped.

Q. There are no brighter, more careful or better business men in the world than the railroad men, are there?—A. I don't know.

Q. That is a fact, isn't it?—A. I believe that they are generally credited with ordinary common sense.

Q. And the improvements and economies in the railroad service have equaled that of any other service in any business, haven't they?—A. I think so; yes, sir.

Q. And it has been worked out principally by the railroad men?—A. Yes. Well, they have had a great deal of help from other sources.

Q. Oh, certainly.—A. The railway supply men, the men who make railway appliances of all kinds, have been working in that
6675 direction, to produce an economy of transportation, and it has been a collective effort.

Q. You have men who have charge of the details of lubrication, haven't you?—A. Yes, sir.

Q. And whom you hold responsible for the education and supervision of the men?—A. Yes, sir.

Q. And do you have anybody traveling over the road that watches that, or do you have your men at the terminal points?—A. The men in charge of car repairs travel over the road, when it is necessary, but the car repairers are principally concentrated at principal points, and they can perform most of their duties there, at the points where the oiling of cars is largely done.

Q. Now, you have other improvements on your cars that have helped in the matter of lubrication, haven't you?—A. Oh, yes; there has been a constant trend of improvement during all of these years.

Q. You have better dust guards to-day than you used to have, haven't you?—A. Yes; I think we have.

Q. The improvement of the dust guard lessens the cost and makes better lubrication, doesn't it?—A. Oh, yes.

Q. Keeps the dust out of the bearings?—A. When you can keep grit out of the boxes it is a great help.

Q. Your men at terminal points, you say, who have charge of the lubrication, watch the men under them?—A. Yes, sir.

Q. To see that they properly lubricate the cars, and that they don't waste oil?—A. Yes, sir.

Q. And when they are traveling on the road they do the same thing?—A. Yes, sir.

6676 Q. So that the principal supervision, in your lubrication of cars, must of necessity be by your own men?—A. Yes, sir.

Q. The fact is, that the Galena people add their knowledge and suggestions to your men?—A. Yes; their inspectors come about and are in touch with all of the men, all of the foremen and men employed in lubrication on our railroad, and they have the advantage of experience on other roads; they know everything new that comes up, and keep our men in touch with the best practice on any of the railroads all the time.

Q. You have how many miles of road, Mr. McKenna—the Milwaukee system?—A. Something in the neighborhood of 8,000 now.

Q. Do you remember the total mileage of railroads in the United States?—A. The last figure I can remember is 226,000 miles of line.

Q. Of main lines, you mean?—A. Yes.

Q. That doesn't include branches, double tracks, and such things?—A. That includes all of the lines of track; the second, third, and fourth tracks would be added.

Q. How many thousand?—A. 226,000 is my best recollection.

Q. The 226,000 does not include double tracks or——A. Oh, no; that is miles of railway line.

Q. Does your 8,000 miles include double tracks?—A. No; that is 8,000 miles of line.

Q. Your mileage is about 4 per cent of the mileage in the United States, then?—A. A little less than 4 per cent, according to

6677 those figures. I don't know that those figures that I have given are correct of the total miles.

Q. The Galena-Signal Oil Company, then, would not have one man who devoted his entire time to your road, would they?—A. I understand they have one man assigned to our road and the Chicago & Northwestern.

Q. That is, they have one man assigned to your road and the Chicago & Northwestern. And the Chicago & Northwestern has about how many miles of road?—A. In their main system, about 7,500.

Q. So the matter of their inspection of your lines and education of your men is not a matter of very great detail; it is principally with your head men—men who have charge on your lines?—A. It has ceased to be a matter of small detail; it was at the beginning, but it is not now, because the principles are so well understood that the only effect of their inspection now is to keep us up to date.

Q. Your company has never used any oil except that of the Standard Oil Company?—A. Not since 1883.

Q. So that during all the period you have been testifying to you have used the same company's oil?—A. We have used the Galena oils for lubrication of engines and cars. We buy other oils, probably. I can't testify as to when the use of Perfection valve oil commenced, or Galena engine oils; I don't think they came in at the first, because I don't believe Perfection valve oil was produced as early as 1883.

6678 Q. So that during all these years you have never had a bid from any other company?—A. Not to my knowledge.

Q. You have never asked a bid of any other company?—A. No. There was no other company that we could ask a bid from. We never had a proffer from any other concern to undertake the lubrication of our railroad.

Q. That is, you don't know of any such offer?—A. No; I don't know of any such offer. We frequently have offers of a lot of oil; had one within two weeks.

Q. Do you know whether the purchasing agent has had offers from other companies?—A. Only by what he told me.

Q. You have no knowledge of that yourself?—A. No.

Q. And you never have asked a bid of any other company to lubricate the Milwaukee road?—A. No, sir.

Q. Now, generally, in buying materials and supplies, your purchasing agent asks bids, doesn't he?—A. That depends. In the routine purchases, probably not; he buys on the market, and he looks after the routine purchases. On large purchases we get competitive bids, usually; yes, sir.

Q. In large purchases, yes; and especially where you let a contract for a term you generally get bids, don't you?—A. Yes, sir.

Q. You have never investigated the cost of lubricating any other railroad, have you?—A. Not particularly. I have general knowledge of the lubricating cost of other railroads.

Q. You have never had submitted to you the details of the
6679 cost of lubricating other roads, have you?—A. Yes; within three years I went into the matter of the cost of lubricating the Pennsylvania and the Santa Fe quite exhaustively.

Q. How did you happen to do that?—A. As the result of a newspaper item, in which it appeared that the Pennsylvania Railroad was getting engine oil for—valve oils—for 24 cents a gallon.

Q. That is, you saw the investigation of the Bureau of Corporations?—A. Yes; and we felt that they had a better arrangement with the Galena Oil Company than we had, and we took it up immediately with General Miller and investigated it to a conclusion.

Q. In that investigation you didn't ask any other lubricating oil company to submit bids, did you?—A. I don't know of any other.

Q. You don't know of any other?—A. I don't know of any other concern in the United States that undertakes the lubrication of railway systems.

Q. Did you ever hear of the New York Lubricating Company?—A. Casually I have heard of it here, in the last two days.

Q. Did you ever hear of the Union Petroleum Company?—A. No, sir.

Q. Did you ever hear of the Pure Oil Company?—A. No, sir.

Q. Did you ever make any investigation to find out whether there were any or not?—A. No, sir.

Q. Do you know that the New York Lubricating Company
6680 lubricated the Louisville & Nashville road for two years, under a contract similar to the Galena's contract?—A. I heard,

within the last month, that such a thing had happened and the Louisville & Nashville gave the contract up because it was unsatisfactory.

Q. Do you know that the Louisville & Nashville said it was perfectly satisfactory, and wrote letters to that effect to Mr. Miller—the president did?—A. No; I never heard that.

Q. You got your information from the Galena-Signal people, didn't you?—A. No; I didn't.

Q. Did you ever hear that Mr. Smith wrote letters to the New York Central and other roads, and to the New York Lubricating Company, stating that the lubrication of the Louisville & Nashville was perfectly satisfactory?—A. No, sir; I never heard of it.

Q. You never heard of it?—A. No.

Q. The Louisville & Nashville is a company nearly as large as the Milwaukee, isn't it?—A. Probably not as large. They have between 6,500 and 7,000 miles, if I remember.

Q. A company that could lubricate that road could lubricate yours, couldn't it?—A. Doubtless.

Q. What?—A. Yes, sir.

Q. Do you know that they also lubricated the Central of Georgia Railway?—A. No, sir.

Q. And the Georgia Railway?—A. No, sir.

Q. You never made any inquiries to find out whether there were any other lubricating companies or companies that
6681 would offer lubrication?—A. No, sir; that wouldn't be usual.

Q. Wouldn't be usual—on your line of road, you mean?—A. On any line of railway. If anybody has anything to sell that a railroad buys, they usually make it known to the railroads.

Q. Do you know that the Pennsylvania, prior to 1897, bought its oils for its large system, in the open market, and lubricated its own line?—A. Yes, sir; I understand so.

Q. And do you know that they reduced the cost down to the basis on which the Standard Oil took the contract in 1897?—A. I don't know that, Mr. Kellogg, and I don't believe it.

Q. You don't know that?—A. No.

Q. You don't know that it is not so, do you?—A. No, but you take the sum of the oil cost, though, I question whether they did it or not.

Q. You don't know that they didn't do it?—A. No.

Q. You heard Mr. Steinbrenner testify that they took it on what the Pennsylvania represented to be 100 per cent of the cost to them, didn't you?—A. Yes, I think that was his testimony yesterday.

Q. You don't believe the Pennsylvania officials would misrepresent it, do you?—A. No, I don't believe they would, knowingly.

Q. How many Standard Oil directors are there in the Milwaukee road?—A. We have, as I recall, four directors that have interests, as I understand, in the Standard Oil Company.

Q. Who are they?—A. Mr. William Rockefeller, Mr. H. H.
6682 Rogers, Mr. Charles W. Harkness, and Mr. Percy Rockefeller.

Q. Four of the Milwaukee directors?—A. Yes, sir.

Q. Who constitutes the executive committee of the Milwaukee road?—A. I don't know whether I can answer that question in full. I know several of them. There is Mr. A. J. Earling, president, Mr. Roswell Miller, chairman of the board, Mr. Peter Geddes, Mr. William Rockefeller, and Mr. Percy Rockefeller. That is all I can remember at this time.

Q. Do you know how much stock in the St. Paul road is owned by Standard Oil men?—A. No, I don't.

Q. You don't know anything about that?—A. No. I saw a list of stockholders that was prepared for the State Railway Commission of Illinois, two years ago, and I knew at that time in a general way.

Q. I am not asking the stockholders' names at all, but I want to know if you know how much they own?—A. No, I never did know.

Q. The Milwaukee road ships a large amount of oil for the Standard Oil companies, doesn't it?—A. All we can get.

Q. And you have had a great deal for a great many years?—A. Yes.

Q. Very large shippers over your line?—A. Yes, and every time I come to New York I go down and see Mr. Felton and solicit more.

Q. Do you know how much that traffic amounts to per annum, and has for a good many years?—A. No, I do not.

6683 Q. Well, it has a very large traffic, hasn't it?—A. Yes, it is a considerable traffic. Our tonnage statistics would show. I would not attempt to say what percentage it is.

Q. Who carries on the negotiations for making these contracts with the Standard Oil officers?—A. Mr. G. T. Crocker.

Q. The general purchasing agent?—A. Yes; not with the Standard Oil officials; with the Galena Oil Company.

Q. Well, the Galena Oil Company—the same thing.—A. I didn't know it until recently. I didn't know there was an association between the two companies.

Q. What is that?—A. I didn't know that they were associated together until recently.

Q. You didn't know that the Galena-Signal Oil Company was controlled by the Standard Oil Company?—A. I did not; not until within a year.

Q. Didn't you have every reason to believe, for many years, that it was?—A. No, I never had the slightest reason to believe it.

Q. You haven't kept very well posted on the Standard Oil Company, have you?—A. No.

Q. You have an idea that Mr. Earling knows, haven't you?—A. He possibly would know more about it than I do, but I don't think that he had understood the relations with the Galena.

Q. Are not these contracts approved by the president himself?—A. I don't think he has seen one of them in fifteen or twenty years.

Mr. Crocker makes the contracts, subject to the approval of the general manager.

6684 Q. Who is the general manager?—A. At present, W. J. Underwood.

Q. Who signs the contracts?—A. Mr. Crocker, I think. I would not be positive about that. I haven't seen any of them recently.

Q. Do you consider yourself an expert on lubrication?—A. No, sir, just the possessor of ordinary knowledge.

Q. You know it is a fact, don't you, that there are other kinds of machinery requiring as high grade oil and as careful lubrication as railway equipment?—A. Yes, sir.

Q. Marine engines?—A. Yes.

Q. And other machinery?—A. Yes.

Q. And don't you know it is a fact that outside companies sell a very large proportion of that class of lubrication?—A. No, I don't know that fact.

Q. You don't know it is not a fact?—A. No, I don't know that it is not.

Q. You don't know anything about it?—A. No. I don't have any time to give to matters of that kind outside of my own business.

Q. You know there is a large amount of lubricating oil sold outside of the Galena-Signal Oil Company?—A. No, I con't say that I do know it. I assume that there is quite a large lot sold.

Q. Except to railroads, I mean.—A. I presume so. I don't know that.

6685 Q. These inspectors of the Galena-Signal Oil Company who travel over your line of road, travel on passes, don't they?—A. I don't believe I could answer that question. I know that they did previous to the passage of the Hepburn Act. I don't know what the status is at this time.

Q. You don't know what the status is now?—A. I question now whether they would be entitled to free transportation, under that law.

Q. Prior to the Hepburn Act they did travel over your line of road on passes?—A. Yes, sir.

Q. And the Hepburn Act was passed about three years ago?—A. 1906.

Q. Two years ago, rather?—A. Two years ago.

Q. And at that time the Union Tank Line men of the Standard Oil Company traveled over your line on passes?—A. Oh, yes. The traveling men of all the fast-freight lines, and their car repairers.

Q. And the Union Tank Line's men of the Standard Oil Company, and officials, all had passes?—A. I don't know, of my own knowledge. I know that the men who looked after the repair, inspection, and tracing of cars had free transportation. Whether the officials had or not, I don't know; I assume they did.

Q. And they did over all railroads, too, didn't they, the same?—A. I presume so. It was usual to give free transportation to people connected with the fast-freight lines, at that time.

Q. And for many years prior to the Hepburn Act the
6686 Standard Oil traveling men, salesmen, a great many of them, had passes on all roads, didn't they?—A. I don't think so.

Q. Do you know they didn't?—A. I don't know that they didn't, but I imagine they did not.

Q. Have you a record of the passes issued years ago on your line?—A. There is such a record in Chicago for maybe a year or two——

Q. I am speaking of, say, ten years ago.—A. No, I don't imagine there is any such record in existence.

Q. Do you know that it is a fact that the Baldwin Locomotive Works of Philadelphia uses the Union Petroleum Company's oil for testing its engines?—A. I don't know anything about it.

Q. Do you know anything about the National Refining Company of Cleveland?—A. Only in a very general way.

Mr. ROSENTHAL. If you keep on, you will show that we are not a monopoly.

Mr. KELLOGG. Well, I don't think they do business enough to hurt them, anyway with the railroads.

Q. Have you that statement for the locomotives, which I asked you for yesterday?—A. I didn't get the proper sense of your question, yesterday, Mr. Kellogg. We had no statement prepared for locomotives, similar to the exhibits that were put in, but I had some miscellaneous data from which we could make up a statement as closely approximating that as possible.

Q. You keep the same records for the locomotives that you keep for the passenger cars and freight cars, don't you?—A. Gener-
6687 ally, yes; but we don't have the locomotive records extending back as far, and they are not kept in exactly the same way. They do produce practically the same results. [A paper was handed to Mr. Kellogg by the witness.]

Mr. ROSENTHAL. I want to call the attention of counsel for the Government to the fact that all of these figures which are shown in this locomotive statement are already in the Government's exhibits which the Galena-Signal Company furnished you, and these exact results, with respect to locomotive lubrication, already appear in the Government exhibits, the only difference being that these net figures here are for fiscal years, and the net figures in the Government exhibits already in are for contract years.

Mr. KELLOGG. Yes, only we haven't got all the years, that is all.

Mr. ROSENTHAL. You may not have as many years.

Q. Now, Mr. McKenna, you said that this contract with the Galena-Signal Oil Company was a contract for lubrication?—A. Yes, sir.

Q. Practically the entire thing accomplished is the sale of oil to the Milwaukee road, isn't it?—A. I presume, from their standpoint, that is what they accomplish. What we accomplish is lubrication.

Q. Certainly. You buy the oil to lubricate your cars.—A. Yes, sir.

Q. And do you know that as a fact their net sales to the rail-
6688 roads last year, or, say, for 1906, were $8,910,000?—A. No, I didn't know that.

Q. That appears in the record here. And, according to their own statement, the total cost of all their traveling men—salaries and all expenses—inspection men I am referring to, was only $182,000?—A. I didn't know that, either.

Q. That appears in the record. Now, on that basis, the principal thing is the sale of oil, isn't it?—A. I presume that is their principal mission on earth.

Q. And the principal thing you get from them is the oil, of course, and pay it in this way?—A. Yes, sir.

Q. And the contract provides for a sale to you of oil at so much per gallon, invoice price, doesn't it?—A. Yes, that is the contract, for the invoice, but it goes farther than that; it contracts that the oil must do so much work.

Q. Certainly—the guaranty in the contract, that the cost to you shall not be above certain figures per thousand mile run.—A. No, that the invoice price shall be a certain amount; and we settle at the end of the year, upon the performance of the lubricants.

Q. Certainly; but it is a direct sale to you of oil at 48, 28, 33, and 18 cents a gallon, isn't it?—A. No, sir.

Q. Will you look at the contract and see?—A. Those are the invoice prices, I understand that; but the price of the oil is not ascertained until after the close of the year's performance.

Q. Then, it is not true, as Mr. Steinbrenner says, that you
6689 pay for the oil at 48, 28, 33, and 18 cents a gallon?—A. Yes, sir.

Mr. ROSENTHAL. I object to that. I object, primarily, to the form of the question. Mr. Steinbrenner has never so testified. He has testified that the 48, 28 and 18 cent invoice prices stated in the contracts were merely used as a basis of monthly settlement; so has Mr. McKenna already so stated; and you put in your question that which the witness Steinbrenner has not testified to.

Q. You, as a matter of fact, pay them each month for the oil they sell you at the rate of 48, 28, and 18 cents, do you?—A. Yes, sir. I don't think we buy any of that 33-cent oil.

Q. Well, 48, 28, and 18 cents?—A. We settle the monthly invoices upon the basis of those prices.

Q. And pay for it at that rate?—A. Pay for it at that rate monthly; but the actual amount that we pay for the oil is not ascertained until at the end of the year's performance. When we find whether the oil has fulfilled the contract requirements, then we have a settlement of the year's business, and if we have overpaid them they refund to us, and if we have made any gain that is our gain.

Q. In other words, at the end of the year, if it has cost your company more—is that right?—A. If it costs more than 6 cents per thousand miles—that is, if we have paid on the invoices an amount that amounts to more than 6 cents per thousand miles on
6690 freight cars, 15 cents on passenger cars, and $1.70 on locomotives—it would be their loss. If we were able to operate those

three factors at less than the figures named, then it would be to the advantage of the railroad company.

Q. Now, in 1907, according to the Standard Oil's statement in evidence in this case, you paid the invoice price of 100 per cent—that is, the year ending the 31st day of January, 1907.—A. My recollection is we paid 98 and a fraction per cent.

Q. That was in the year ending January 31, 1906 [handing a paper to the witness].—A. I probably haven't seen the figures for 1907. [After looking on paper.] Yes.

Q. It appears in the evidence, also, by Exhibit 274, I believe it is, that the total net sales to all railroads by the Galena-Signal Oil Company, in 1906, were substantially $8,910,000; the total profits to the Galena-Signal Oil Company, $2,749,000, or 31 per cent of the sales. That is a pretty good profit, isn't it?—A. Oh, not an unreasonable profit in the manufacturing business.

Q. That is 50 per cent of the total invoice of all the property, plant, and assets of the Galena-Signal Oil Company per annum: 50 per cent per annum is a pretty good profit, isn't it?

Mr. ROSENTHAL. Fifty per cent per annum of what?

Mr. KELLOGG. Of the total capital actually invested, assets and everything, of the Galena-Signal Oil Company.

A. Yes; that looks like a reasonable profit, although I have known mercantile and industrial concerns to do better.

Q. You don't know of many of them doing any better than
6691 that, do you?—A. Well——

Q. Now, if the Galena-Signal Oil Company is losing money on a number of large systems in this country, as Mr. Steinbrenner testified, the rest of you must be paying a pretty good profit; isn't that true?—A. That would seem to follow, yes, sir.

Q. Have you ever made any investigation to see whether you were paying an excessive price for oil?—A. No, beyond the fact that once in a while we have a lot of oil offered to us by some of these concerns, and their prices are not so far out of line with the prices that we are paying.

Q. When have you had any offered to you, and by what companies?—A. We had one within two weeks, from a St. Louis concern.

Q. Within two weeks?—A. Yes; within three weeks, probably.

Q. And how long before that?—A. I can't recall of having a tender within two years past, except in that one instance.

Q. Do you remember the price of that one two years ago?—A. No. My recollection is it was 14 cents.

Q. For what?—A. For car oil.

Q. And your guaranty is 15?—A. Oh, no; the guaranty has nothing to do with gallons; that is based on miles.

Q. Oh, yes, I beg your pardon; that is right. I withdraw that.—A. Our price of car oil is 18 cents.

Q. With that exception, during all these years you have
6692 made no investigation as to the value or price of these oils?—A. I could hardly say that. We keep a general supervision

of the proposition, and keep records of the performance, which are shown here in evidence.

Q. Certainly.—A. It shows a continually improved result in respect to the lubrication of our railroad.

Q. But that is only that one company?—A. Yes. That is the only company we have dealt with in all these years.

Redirect examination by Mr. ROSENTHAL:

Q. Do you know the percentage of increase in weight and size of lubricating surface during the past ten or fifteen years, on locomotives?—A. No, I don't know what the lubricating area is. I testified yesterday to the fact that in the past ten years the weight of our locomotives had increased 29.4 per cent, as I recall it, and the tractive power a trifle over 30 per cent.

Q. In round numbers, then, the increase in weight and tractive power has been 30 per cent?—A. Yes, sir.

Q. I understand you to say that you investigated the Pennsylvania and Santa Fe systems, with a view of comparing their cost of lubrication with the St. Paul cost of lubrication, when some of these newspaper articles instituted by the Bureau of Corporations recently appeared?—A. About two years ago, as I recall it.

6693 Q. What was the result of that investigation?—A. We found that there was a very considerable difference in the basis upon which their guaranty was made; but we also found that we were getting our lubrication cheaper than either of those railroads.

Q. What is your relation to the handling and movement of freight on your road, as second vice-president?—A. I have charge of the train operation and everything connected with the physical movement of freight; that is, general charge.

Q. Has any official of the Standard Oil Company, whether connected with the St. Paul road or otherwise, ever sought to induce you, or any other employee of your road, to your knowledge, to favor the Galena-Signal Oil Company?—A. Never.

Q. So far as you know, is there the slightest relation between the movement of Standard Oil Company's freight over your line and the purchase by your line from the Galena-Signal Oil Company of lubrication?—A. There is no connection with the two lines of business whatever.

Q. Isn't it true that, relatively speaking, the decrease in the cost of lubrication during the past twenty-five years has been greater than that in almost any other department of railroading?—A. That is true with respect to the lubrication of freight and passenger cars: not so markedly, however, in respect to the lubrication of locomotives,

6694 due to the fact that the locomotives are continually growing larger. An 8-wheel engine, which would have 16 bearings, when its successor is built and put in service it would be a locomotive having probably 14 bearings to lubricate; but even in that respect the increase in cost of lubricating locomotives has not gone up in proportion to the increase in weight or the increase of bearing surface to be lubricated.

Q. Do you know, in round percentages, what the increased cost of locomotive lubrication has been, during the past twenty years, say?—A. Oh, it is very much less now than it was twenty years ago; well, twenty-five years ago—I know it is much less than it was at that time. I should say probably 25 to 40 per cent less.

Q. And at the same time, the increase in weight and tractive power has been 30 per cent?—A. No; that is within the past ten years. Within the past twenty-five years, I should say that the increase in weight has been more nearly a hundred per cent.

Recross examination by Mr. KELLOGG:

Q. Now, the cost of locomotive lubrication the last ten years has very materially increased per thousand mile run?—A. Not to any startling degree; probably ten per cent.

Q. And you don't pretend to say that the weight of locomotives has increased a hundred per cent in ten years?—A. No, sir. I said that I should say going back twenty-five years.

Q. Oh, going back twenty-five years. Your statement that
6695 you make here shows that during the years you gave the figures for, 2 9per cent wa sthe increase.—A. 29.4 is the increased weight; yes, sir; that is as I recall it.

Q. The cost in the last ten years is nearer 15 per cent than 10, isn't it?—A. I just cast those figures up quickly in my mind. It might be true. It is shown on the statement there, isn't it, Mr. Rosenthal?

Mr. KELLOGG. Well, it appears in evidence, I guess.

Mr. ROSENTHAL. This is the statement that you produced in response to Mr. Kellogg's call of yesterday [showing statement to witness].

WITNESS. Twenty-three cents from 1898 up till and including 1906. It is more than that, in respect to 1907, but there is a reason why our expense of lubrication in 1907 went up very rapidly. We put 120 new engines of the largest type into service, and in their first thirty days of service they consume oil in much greater proportion than they do afterwards. So 10 per cent is relatively practically correct.

Q. Your statement that you are talking from is made out by calendar years, isn't it? —A. Yes; that is the calendar year.

Q. So it does not compare with the statement made out by the Galena Signal Oil Company, which is not made up that way.

Mr. ROSENTHAL. That is made out by fiscal years.

Mr. KELLOGG. Yes. It is very hard to check it.

Q. Now, the decrease in cost of many branches of the service has been as great as that in the lubrication, as a whole, hasn't it?—
6696 A. In respect to lubrication of cars, the reduction of cost of lubrication has been the most marked of any economy on the railroad.

Q. I am speaking of the lubrication of the whole line.—A. The reduction in the cost of lubrication has certainly been as great as any other element that enters into the operation of a railroad, and, I think, the greatest.

Q. You haven't made any figures to show that?—A. No; I have not.

Q. That is a mere impression?—A. It is an impression, but it is firmly fixed in my mind.

Q. There was the greatest chance for waste there, I suppose, wasn't there?—A. Yes; previous to twenty years ago or twenty-five years ago, when we first started in.

Q. You say you made an investigation of the Pennsylvania Railroad, to see whether the Milwaukee got its lubrication as cheap as the Pennsylvania?—A. Yes, sir.

Q. You heard Mr. Steinbrenner's testimony, that, say, the Pennsylvania lines west of Pittsburg, called the Pennsylvania Company, got its oil for 38 per cent of what the Milwaukee paid for oil, didn't you?—A. I believe that was his testimony yesterday. That does not change the fact, however, that we got our lubrication cheaper than the Pennsylvania Railroad Company did.

Q. How do you mean cheaper; per 1,000 miles run?—A. For 1,000 miles run.

Q. In order to determine how cheap you get your lubrication, haven't you got to know how much oil was used per thousand
6697 miles run, the weight of locomotives, the heft of trains, the grades, and many other things?—A. I don't believe I comprehend your question. In respect to what it costs us to lubricate, that doesn't cut any figure.

Q. What factors did you take into consideration in determining that?—A. The number of pints of oil used to run a thousand miles. That is the result we get at the end of the month.

Q. The number of pints of oil to run a thousand miles?—A. Yes, sir.

Q. And you found out that your line used less oil than the Pennsylvania?—A. Yes.

Q. And that is all you calculate that on.

Mr. ROSENTHAL. No; used less oil per thousand miles.

Q. That is what I mean.—A. That is to say, when I started the investigation I was under the impression that the Galena Signal Oil Company had given the Pennsylvania lines a better contract than we had, and I started right after them to get just as good as anybody else had. The result of the investigation was that while the Pennsylvania road paid less per gallon for the various classes of oil, that we got our lubrication cheaper than they.

Q. Per thousand miles run?—A. Per thousand miles run, which was the economic result we were after.

Q. Did you compare the weight of the locomotives on the Pennsylvania system with the weight of the locomotives on your system?—A. No; I didn't go into it in that much detail.

Q. Did you compare the weight and size of the cars on the
6698 Pennsylvania with yours?—A. No.

Q. You made no such comparison?—A. It wasn't necessary.

Q. Did you compare the question of grades on the Pennsylvania road?—A. No, sir.

Q. The weight of the trains hauled?—A. No, sir.

Q. The speed of the trains?—A. No, sir.

Q. All of those are very important factors in the amount of oil used, aren't they?—A. They are more or less factors that enter into the equation, but our general knowledge of those subjects would make it unnecessary to go into details.

Q. Now, a large part of the Milwaukee system is branch lines, isn't it—small branch lines, where the traffic is not heavy like the Pennsylvania lines?—A. Yes; that is true.

Q. And where the equipment is lighter?—A. No; we use the same equipment on the branch lines, except locomotives, that we use on the main lines.

Q. I am talking about locomotives largely.—A. We use lighter locomotives on the branch lines; yes, sir.

Q. And locomotive lubrication constitutes about 80 per cent of your cost?—A. Yes.

Q. The trains you run on your branch lines are very much lighter than the principal trains of the Pennsylvania, aren't they?—A. Very decidedly, yes.

Q. And the engines very much smaller?—A. Yes; I presume they have some small engines on their branch lines, but not in the same degree that we have.

6699 Q. Not in the same proportion. Now, it would necessarily require very much more oil per thousand mile run, on an average, on the Pennsylvania system than it would on yours, wouldn't it?—A. Yes, I think it would; although there are some advantages in their favor. They have largely a stone ballasted railroad, while ours is of gravel and sand, and we pick up more grit than with them. We have more gritty substances to work against. In respect to our main lines as against their main lines, I don't think there is a particle of difference. We use engines of not exactly the same types, but practically the same types.

Q. Do your engines haul as heavy loads as the Pennsylvania trains?—A. On equivalent grades, yes, sir.

Q. But the grade makes a good deal of difference, doesn't it, in the lubrication?—A. Yes.

Q. So it costs more to lubricate a road with heavy grades?—A. Not necessarily.

Q. Have you figured on that?—A. No; I haven't figured on it.

Q. You are just giving a wild guess, are you?—A. No; it is not a "wild guess;" it is based upon my experience of some thirty or forty years in the business.

Q. You have never made any calculation on that?—A. I don't think there has ever been any differentiation made. These engines are all equipped with magazine oilers, and I don't believe any-

6700 body on earth knows how much they use going up grade, and

how much they use going down grade. I know they use more valve oil going down grade than going up.

Q. Why is it that the Pennsylvania road uses so much more oil to lubricate per thousand miles than your company?—A. I couldn't answer that question. I don't know. The statistics show that they use it.

Q. The statistics show that they use it?—A. They use more than we do.

Q. And the statistics show that, per gallon, they get their oil for less than half of what you pay?—A. Yes; I believe that is the fact.

Q. Now, isn't it acknowledged among railroad men that the Pennsylvania system is one of the best managed roads in America?—A. Yes, sir.

Q. Its officers of the highest grade?—A. Yes, sir.

Q. And a road that uses the highest talent in all its branches?—A. That is generally understood.

Mr. ROSENTHAL. That is what we have been claiming.

Q. And yet, although it buys its oil for less than half per gallon what you buy yours for, you claim you get your lubrication cheaper than they do?—A. That is what I am buying for, Mr. Kellogg. I don't think the price of oil cuts any figure in the equation. We have a contract to lubricate our railroad under certain conditions. As a mere matter of accounting, they render us invoices each month, upon which we pay. At the end of the year we get all the statistics
6701 that have been made, which pertain to the contract, and reach a final result as to what we shall pay for the oil for that year. If we gain on the contract we get a refund. If we were wasteful in lubrication and they didn't fill the guaranties, then it would be their loss.

Q. Well, you are paying now, according to your own statements, one hundred per cent of the invoice price.—A. We did for 1907.

Q. The Pennsylvania is paying less than fifty per cent of the invoice price?—A. Yes.

Q. So it gets its oil per gallon for less than half what you do?—A. Yes.

Q. If it is a fact that there is no reason why the Pennsylvania should use any more oil per thousand mile run than your lines, the Pennsylvania must be very wasteful, mustn't it?—A. I imagine there there is a good deal of waste in it. I don't think they supervise the matter as closely as we do.

Q. And yet it is a railroad that has the reputation among railroad men of being a very careful and very well managed road?—A. In very many respects. I don't think the management is excellent with respect to the use of lubricants.

Q. Do you know anything about what precautions they take?—A. No, I don't know anything about it.

Q. Have you made any investigation into that?—A. No.

Q. Do you know that they keep experts working on that all the time?—A. No, I don't.

6702 Q. Do you know that they have a laboratory of their own?—A. Yes, I know that.

Q. And do you know that they have inspectors over the line?—A. They did when I worked for them, 22 years ago.

Q. Do you know Mr. Dudley, who has charge of the lubrication of the road?—A. Very well.

Q. Isn't he one of the best informed men on the subject in the United States?—A. Very well informed.

Q. If it is a fact that you can lubricate so much cheaper, you ought to have a less guaranty per thousand miles, oughtn't you?—A. Yes. I expect to get it when we make the next contract.

Q. You found out what the other roads were paying through this investigation, didn't you?—A. We knew that generally before.

Q. You knew generally?—A. In a general way, yes. The purchasing agents get together and talk these matters over to see that these monopolies don't get much the best of us.

Q. How did your purchasing agent find out the contracts made and the result of the contracts with the other lines?—A. In the case of the Santa Fe, I went to Mr. Hodges, their purchasing agent, and got him to give me their contract.

Q. That is, after the investigation; but during these years, how did they know what the result was on other lines?—A. We
6703 knew generally. The Galena Oil Company would give Mr. Crocker knowledge of what the contracts were with other railroads.

Q. Why is it that they so strenuously objected here to making known to the other lines the result of their operation on any of these roads?—A. Well, I assume that a careful merchant would not open his books to the public.

Q. Because they didn't want you to know it; isn't that the reason?—A. Possibly; I don't know.

Q. And you didn't know the result of the Pennsylvania operation until after that investigation, did you?—A. Well, it called our attention to it.

Mr. ROSENTHAL. There has been no objection on this record to making public our figures, so far as other railroads were concerned. The objection was to making them public so far as competitors were concerned.

Mr. KELLOGG. Is that so?

Mr. ROSENTHAL. Yes, that is exactly it.

Mr. KELLOGG. I don't recollect it that way, Mr. Rosenthal.

Mr. ROSENTHAL. If you examine the record you will find that is the fact. The same ground of objection as was made by Mr. Harrison producing certain figures, books, and papers.

Q. You say no official of the Standard Oil Company has ever said anything to you about shipments over the line?—A. I have
6704 talked with Mr. Felton quite frequently, usually, from the standpoint of asking him if he couldn't give us some more business. I solicited him earnestly and frequently. But no official

of the Standard Oil Company has ever said a word to me in respect to the Galena Oil Company matters; no Galena Oil man has ever spoken to me in connection with Standard Oil matters, and I didn't know, as I have stated previously, until within a year that there was any relation between the two companies.

Q. You are not in charge of the traffic on the Milwaukee road, are you?—A. No, sir; the operating department is in my charge.

Q. And you don't know what has been said to the other officials?—A. No.

Q. They keep pretty close tab on the big companies that ship over their lines, don't they?—A. Yes.

Q. And keep after the business pretty lively?—A. Yes.

Q. That is generally so with railroads, isn't it?—A. Yes, sir.

Q. They don't need to be told every day what company is a big shipper, do they?—A. No, they have men employed to keep tab on them all, to find out how they are shipping stuff, what road it goes over, and whether we are getting our proportion of it.

6705 LOUIS C. FRITCH, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. ROSENTHAL:

Q. What is your full name, please?—A. Louis C. Fritch.

Q. Where do you live, Mr. Fritch?—A. Chicago.

Q. And how long have you lived there?—A. About four years.

Q. What is your occupation?—A. Assistant to the president of the Illinois Central Railway.

Q. And have been for how many years?—A. About two years.

Q. Previous to that what was your occupation?—A. Previous to that I was assistant to the general manager of the Illinois Central Railroad.

Q. And prior to your connection with the Illinois Central?—A. I was connected with the Baltimore & Ohio Southwestern Railroad.

Q. During what years?—A. From 1893 until 1904.

Q. In what capacity?—A. Part of the time as division engineer and part of the time as superintendent.

Q. Prior to your connection with the B. & O. Southwestern, what was your occupation?—A. I was with the Ohio & Mississippi Railroad Company.

Q. In what capacity?—A. In the engineering department.

Q. For how many years?—A. From 1884 until 1893.

6706 Q. How long have you been in the railroad service?—A. Twenty-four years.

Q. As assistant to the president of the Illinois Central Railroad, in a general way what are your duties?—A. The president has charge of all matters connected with the Illinois Central Railroad, and it is my duty to be in touch with all matters that pass through our office.

Q. In that connection have you become familiar with the question of lubrication on the Illinois Central?—A. Yes, sir.

Q. And in the other positions that you occupied with these other railroads, were you there familiar with the question of lubrication?—A. Yes, sir.

Q. On those roads?—A. Yes, sir.

Q. What company lubricates the Illinois Central?—A. We have a contract with the Galena-Signal Oil Company.

Q. And what company lubricates the B. & O. Southwestern?—A. The same company.

Q. And the Ohio road that you were with—the Ohio & Mississippi?—A. I am not familiar with the arrangement on the Ohio & Mississippi Railway.

Q. In your railroad experience have you ever been in contact with any other lubricating oils than those of the Galena-Signal?—A. Yes, sir.

Q. What others, and when?—A. The Baltimore & Ohio Southwestern Company used an oil previous to the contract made with the Galena-Signal Oil Company. I don't recall the name of the company at this time.

6707 Q. And how long was that used, do you remember?—A. I am not able to say.

Q. And with what degree of satisfaction?—A. It was a very good grade of oil and gave very good satisfaction.

Q. Did you ever institute any comparisons between that and the Galena-Signal oils?—A. I did not.

Q. During all the time that you have been connected with the Illinois Central, the Galena-Signal oils have been used?—A. Yes, sir.

Q. In your experience, extending over twenty-four years, generally speaking, has there been any improvement in the matter of railroad lubrication?—A. Yes, sir.

Q. Can you enlarge upon that somewhat, Mr. Fritch?—A. The improvement has resulted in a reduced cost per unit of service in lubrication, and this has been chiefly brought about, in my opinion, by the system of expert advice which the Galena-Signal Oil Company has given to railroads, particularly to the lines which I have been connected with. That has consisted of sending experts over the line of road to instruct the men with regard to the economical use of oil, the preparation of the oil with its constituents or absorbents, and in other matters connected with lubrication.

Q. What authority have these Galena experts had on the roads that you have been connected with, so far as their relations to the railroad companies' employees are concerned?—A. They have the au-

6708 thority to consult freely and instruct all employees who have anything whatever to do with the question of lubrication.

Q. Take the Illinois Central as an example. Besides the Galena experts, has the Illinois Central in its employ lubricating experts?—A. We have not.

Q. As a railroad man, have you any opinion upon the question as to whether a given railroad company could as advantageously employ an expert and use him, as the Galena-Signal?—A. Well, not as ad-

vantageously. Of course it would be within the range of possibility for a railroad company to perform that same service, but they are not equipped for it. We have not the expert men in our service. We could, doubtless, secure them if we paid enough money for them.

Q. Have you any idea what the Galena-Signal pays its better experts?—A. Yes, I have.

Q. How do their salaries compare with the salaries paid by railroad men for like class of service?—A. They pay their experts from two to three times the salary we pay men in like service; that is, not like service, because we haven't the men in like service, but men who would perform duties of that nature.

Q. What can you say, Mr. Fritch, as to the breadth of the experience that an expert in the employ of the Galena Company could naturally obtain as compared with the experience that an expert in the employ of any given railroad company might obtain?—A. Well, the experience of a man located on any one line of road would be very much restricted. He would come in contact with questions that
6709 would arise only on that particular line, while the Galena experts are men who have a varied experience over different lines of railway, which I consider a very valuable experience, and we profit from that through the expert service of the Galena Company now. Conditions vary on every railroad. It is impossible to compare one railroad with another on account of the varying conditions.

Q. Does the Illinois Central keep a record showing the performance of its various locomotive engineers in the use of lubricants?—A. Yes, sir. The oil is issued upon tickets. These tickets are turned over to the man in charge of the oil house. He makes up a report, tabulating those tickets. From these reports made from the tickets a performance sheet is made up showing the number of gallons of oil of the various classes used on each locomotive, in addition to the other stores or supplies. This is kept up, and a rivalry is created among the different engine men to see who can make the best record. That has a tendency toward reducing the quantity of oil used. In addition to that, we keep a record showing the number of pints of oil used per thousand miles run in different classes of service.

Q. In your opinion, Mr. Fritch, is economy in any one department conducive to economy in other departments?—A. It most decidedly is. If a man is trained to an economical handling of material of one kind, it begets economy in the handling of other classes of material.

Q. So that an education, extending over a great many years, in the economical use of oil, of your employees who come in con-
6710 tact with the use of oil, would be conducive to great economy all along the line in connection with all other supplies handled by those same employees, would it not?—A. Yes, sir; that necessarily follows.

Q. So that apart from any and every other consideration relating to the terms of a given contract, for example, a railroad company

would have a motive in keeping down the quantity of oil that it uses in lubrication?—A. We certainly would, because we keep a record; we are interested to keep down the cost of operation to the lowest point, and there is a constant effort made to make an improvement in that showing.

Q. Well, you have this system of guaranties in your Galena-Signal contract the same as all the other railroads, I suppose?—A. Yes, sir.

Q. And what advantage, if any, accrues to the Illinois Central in making the most economical use of oil possible, even under that contract?—A. It reduces the total cost of our lubrication.

Q. Will you just explain how that is?—A. Even though we should not use enough oil to reach the guaranteed cost, anything below that of course reduces the total cost of our lubrication. That is the only explanation there is to it. We are interested in getting the very lowest total cost of our lubrication. The less oil we use, the nearer we come to that end.

Q. Do you know how many experts the Galena now has on
6711 the Illinois Central system?—A. I don't know how many they have at this particular time. Our contract provides that we may avail ourselves of the expert service to any extent that we deem fit or necessary.

Q. Can you tell us generally, Mr. Fritch, whether there has been a constant improvement, or otherwise, in methods of lubrication during the past ten or fifteen years, say?—A. There has been a decided improvement on the lines with which I have been connected in the way of reducing the number of hot journals and the general improvement that would result from such cause.

Q. Now, first, the reduction of the number of hot journa[illegible] Has that any relation to a decrease in repairs generally?—A. [illegible] direct bearing upon the cost of repairs.

Q. That is, a decrease or a reduction in the number of hot journals means a decrease in the amount or extent of the repairs, does it not?—A. Certainly; it has a direct bearing on the cost of repairs because every hot journal requires attention and repairs.

Q. And it also involves a saving in the number of brasses, does it not?—A. Yes, sir.

Q. Has there been any improvement in the matter of the saving of waste?—A. With the Illinois Central there has been a decided improvement in reducing the cost of waste used in lubrication.

Q. Is there any relation, in your judgment, between lubrication and the use of fuel?—A. There is a relation. The more
6712 perfect the lubrication the less the friction of the journals; therefore the less power it will require to haul a given load.

Q. So improvement in lubrication necessarily means a decrease in the amount of fuel required to move the train?—A. It certainly does. That is aptly illustrated by a train during cold weather that may be tied up for a time and the lubricant become frozen or partly so. Under certain conditions it would be almost impossible to move that

train, whereas if the oil were in its proper state it would not be difficult to move the train.

Q. It is true, isn't it, that there probably is no single branch of railroading that is of greater importance in connection with the operation of trains than this subject of lubrication?—A. I think that is one of the most important subjects we have to deal with, because when machinery is well oiled it will run smoothly.

Q. And its importance to the railroad company is not at all in proportion to the number of dollars that railroad companies seem to spend every year for lubrication, pure and simple. It ramifies and broadens out in its effect, does it not?—A. The bare cost of your lubricant is not the entire question; it is a secondary matter. Back of that there may be a lot of elements that are hidden unless you take them into consideration. For example, if you were to use a poor quality of lubricating oil, and have trouble with your hot journals,
6713 burn them off, have disastrous freight wrecks, or, possibly, passenger wrecks, with resulting loss of life, those things would not be reflected in the cost of your oil or your lubricant. Those are things that must be taken into consideration in connection with the whole subject. Therefore I think the bare cost of your lubricant is not the whole question.

Q. And you conceive for that reason, if a railroad was being sufficiently lubricated by a given company, and had been for a great many years, that the men in charge of that railroad company might well hesitate before introducing any change in lubrication, would you not?—A. We would treat them as we do all other classes of contracts which we make. If we are going to do some important piece of work, we take the most responsible person we can find. The cost is secondary. It is the question of the responsibility of the party to fulfill the contract.

Q. And responsibility not only with respect to financial responsibility but in every other direction, I suppose?—A. The entire responsibility; the responsibility to carry out the contract.

Q. In connection with the operation of the Illinois Central, beside the inspection of the Galena experts, do you have any other systems of inspection?—A. Do you mean by——

Q. By inspectors outside of the service of the railroad companies.—A. Do you mean a service that might be called parallel with the Galena service?

Q. Yes, sir.—A. Well, there is a class of service called
6714 fire protection service, which is analogous to the service rendered by the Galena-Signal Oil Company's experts.

Q. Tell us about that generally, will you, please?—A. The plan is that these fire-protection experts are sent over a railroad to inspect the property and point out defects that might cause fire risks or that might be fire risks, and make reports upon the service. They make these reports for the purpose of getting more favorable insurance upon these properties. Now, that requires expert service, and, as a rule, railroads are not equipped with that class of men. That is prob-

ably a case that might be called parallel with the service of the Signal experts.

Q. And in your engineering department it very frequently happens, does it not, that you go outside of your engineering department for consulting expert service?—A. Yes; if we have an important structure to build, an important bridge to erect, we call upon men who are especially qualified in those particular lines of work, consult them for their advice.

Q. Mr. Fritch, is there any relation between the increase in the size and weight of railroad equipment and lubrication? If so, please state what it is.—A. There is. Lubrication is affected certainly by the weight of the equipment upon the bearings.

Q. That is, the heavier the locomotive or car, the more lubricant is required?—A. The more lubricant and the better quality is required. The heavier the weight, the greater the friction upon the journal or the bearing.

6715 Q. So that with the increase in the weight of equipment has come the necessity for the increase in the quality of the lubricant?—A. Increase in quality and in quantity; therefore, the cost.

Q. Now, with the increase of the weight of the equipment, has there been any increase in the size of the journals, the bearings?—A. Yes, sir. Say ten years ago, the railroads were using journals under freight cars that were 3¾ inches in diameter and 7 inches in length, whereas now, under our recent heavy steel coal cars we use journals 5½ by 10 inches.

Q. What, if any, effect has that upon the use of lubricants?—A. It requires a larger quantity of lubricant and the very best quality to perform the service.

Q. That is to say, the lubricating surface has been materially increased?—A. Very largely increased.

Q. By the increase in size of these parts; and increasing the size of the lubricating surface necessarily increases the quantity of the lubricant required?—A. Yes, sir. That is true of freight cars as well as of locomotives and passenger cars.

Q. Have you prepared a table showing the class and weight of locomotives purchased by the Illinois Central each year from 1897 to 1906, inclusive?—A. Yes, sir.

Q. Have you that with you, Mr. Fritch?—A. Yes, sir.

(A paper was produced by the witness, which was marked Defendants' Exhibit 18.)

6716 Q. Will you please explain the paper which you hold in your hand, marked Defendants' Exhibit 18?—A. This is a statement showing the class and weight of locomotives purchased each year on the Illinois Central Railroad from 1907 to 1906, inclusive. It shows that in 1897 there was a total of 25 locomotives purchased, the total weight of which for engines alone, not including the tenders, was 3,085,000 pounds. In 1898 there were purchased 18 engines, weighing 2,357,800 pounds; in 1899, 26 engines, weighing 3,841,700 pounds; in 1900, 47 engines, weighing 7,156,150 pounds; in 1901, 63

engines, weighing 9,355,800 pounds; in 1902, 66 engines, weighing 10,978,380 pounds; in 1903, 63 engines, weighing 11,404,500 pounds; in 1904, 84 engines, weighing 15,380,600 pounds; in 1905, 72 engines, weighing 13,304,000 pounds; in 1906, 40 engines, weighing 7,592,500 pounds. And for the entire period, 504 engines, weighing a total of 84,456,430 pounds. In addition to what I have read, it gives a detailed number of engines of each class, with their weight, for the different periods.

Mr. ROSENTHAL. I offer Defendants' Exhibit 18 in evidence.

Q. Now, have you computed the average weight of all the locomotives in service on the Illinois Central in 1897 and in 1906?—A. Yes, sir.

Q. Have you that, Mr. Fritch?—A. I have.

(Witness produces paper, which was marked Defendants' Exhibit 19.)

WITNESS. The average weight of all locomotives in service
6717 in 1906 was 130,507 pounds, and in 1897 100,656 pounds, or an increase of 30 per cent. We have to-day in use 18 Pacific type passenger engines, each weighing 224,000 pounds, for engine alone.

Q. Is there any relation between an average increase of 30 per cent in the weight of locomotives, in the period from 1897 to 1906, and the use of lubricants?—A. Yes, sir; there is a very close relation. Besides, that does not tell the greatest relation—that average. The most significant relation is that in ten years we have increased the total weight of our locomotives, tenders included, 100 per cent. That average only shows it 30 per cent.

Q. That is, taking into consideration the tenders?—A. The tenders.

Q. Taking the locomotive alone, you have an increase of 100 per cent, instead of 30 per cent?—A. Yes. The trouble with that percentage there is, it takes the very small engines of years ago and our heavy engines of to-day. The heaviest locomotives have been purchased in the last five or six years, and the total weight has increased very rapidly.

Q. So that your statement is that the increase in total weight, during the past ten years, of the locomotives, including tenders, is 100 per cent?—A. Just 100 per cent. I figured it up myself.

Q. And would that require more or less lubricant?—A. It would require a very great deal more.

Q. Is there anything like a percentage relationship, that you are able to figure out, between the increase of the weight of
6718 equipment and the increase in the amount of lubrication required?—A. In my opinion it should increase more rapidly than the actual increase in weight, for the reason that the parts of the large modern locomotive, taking the cylinders and the valves and the eccentrics and the valve motions, and everything of that kind, have increased more than the weight, in a larger ratio than the weight of the engine; therefore, the ratio of increase of lubricants used would be more than the increase in weight; at least, it would not be unreasonable to expect it to be equal to the increase in the weight.

Q. And is it not true that along with this increase in the weight of the locomotive, as I understand your last answer, there has been an increase in the number of those parts that require higher priced oils for lubrication?—A. Yes, sir. Take the cylinders and the valves and the delicate parts of the mechanism of the locomotive, they require a higher grade of lubricant than the journals.

Q. And those parts of the locomotive have increased in greater ratio than any other; isn't that so?—A. Yes, sir. Take the compound locomotives, they require a great deal more lubrication than a simple locomotive.

Mr. ROSENTHAL. I offer Defendant's Exhibit 19 in evidence.

Q. Have you prepared figures showing the increase in the weight of freight cars on the Illinois Central during the same period, 1897 to 1906?—A. Yes, sir.

6719 Q. Will you produce that, please?

(Witness produces paper, which was marked Defendants' Exhibit 20.)

Q. What do you mean by the "tare weight?"—A. That is the weight of the car itself.

Q. Will you explain Defendants' Exhibit 20?—A. The average tare weight of all freight cars in service in 1906 on the Illinois Central Railroad was 32,300 pounds, and in 1897, 27,000 pounds, an increase of 19.63 per cent. The tare weight of steel cars of 50 tons capacity to-day is 42,000 pounds, and with full load with 10 per cent above marked capacity would be 152,000 pounds, against about 110,000 pounds 15 years ago, or an increase of about 40 per cent. The average tonnage capacity of all freight cars in service in 1906 was 34.78 tons, and in 1897, 24.42 tons, or 42.51 per cent increase.

Mr. ROSENTHAL. I offer Defendants' Exhibit 20 in evidence.

(A recess was here taken until 2 o'clock p. m., at which time the direct examination was resumed.)

Q. In Defendants' Exhibit 20, Mr. Fritch, I find the statement, "The tare weight of steel coal cars of 50 tons capacity to-day is 42,000 pounds, and with full load with 10 per cent above marked capacity would be 152,000 pounds, against about 110,000 pounds 15 years ago, or an increase of about 40 per cent."

6720 How do you get that 152,000 pounds?—A. The tonnage capacity of those steel coal cars is 50 tons, or 100,000 pounds; but it is permissible to load them up to 10 per cent above the marked capacity. That would give you 100,000 pounds, plus 10 per cent, which would be 110,000 pounds, plus the tare weight, 42,000 pounds, which would make 152,000 pounds.

Q. Now, this same exhibit shows that the average increase in tonnage capacity of the freight cars in service on the Illinois Central in 1897 to 1906 was 42.51 per cent. What relation has that to the matter of lubrication?—A. It indicates that the average load per car, or possible load per car, is greater by about 42½ per cent than it was ten years ago, and that has a direct bearing on the friction on

the journals of the car; therefore a direct bearing upon the lubrication required for those journals.

Q. To what extent? Does it increase the amount?—A. It increases the amount or the quantity of lubrication required, as well as calling for a better quality.

Q. Do you know whether the cost of lubricating tenders is considered as part of the cost of the lubrication of the locomotive?—A. Yes, sir; it is included in the lubrication of the locomotives.

Q. Have you prepared a table showing the increase in freight cars and the journal-bearing surfaces of such cars on the Illinois Central, from 1897 to 1906?—A. Yes, sir.

Q. Will you produce that statement, please?

6721 (Witness produces paper, which is marked Defendants' Exhibit 21.)

Q. The statement that I have just described is marked Defendants' Exhibit 21, is it?—A. Yes, sir.

Mr. ROSENTHAL. I offer Defendants' Exhibit 21 in evidence.

Q. Will you please explain that, Mr. Fritch?—A. This is a statement showing the increase in freight cars and the journal-bearing surface of such cars on the Illinois Central Railroad for the years 1897 and 1906, respectively. It shows, first, the size of the journals, the bearing surface per journal, the bearing surface per car, of the journals per car. For 3¾ by 7 inch journal the bearing surface per journal is 41.2125 square inches; per car it is 329.7 square inches. For 4¼ by 8 inch journal, the bearing surface per journal is 53.38 square inches; per car, 427.04 square inches.

Q. That is, in a car where the journal is 4¼ by 8 inches, the lubricating surface is 427.04 inches?—A. Yes, sir. For a 5 by 9 inch journal, per journal is 70.686 square inches; per car, 565.488 square inches. For 5½ by 10 inch journal the bearing surface per journal is 86.394 square inches; per car, 691.152 square inches.

Q. So that the difference between your small-sized journal, which is 3¾ inches by 7 inches, and your large journal, which is 5½ by 10 inches, is the difference between 329.7 square inches and 691.152 square inches?—A. Yes, sir.

Q. In other words, the surface exposed for lubrication with
6722 the larger journal is more than twice as much as it is with the smaller journal?—A. Yes, sir.

Q. And, consequently, the amount of oil to lubricate that surface would be proportionately as great?—A. It should be. And then the statement shows also the number of freight cars for the year 1897 with different sized journals, first, 3¾ by 7——

Q. That is, this statement shows that you had in 1397 12,889 freight cars the size of whose journals was 3¾ by 7?—A. Yes, sir.

Q. That is right?—A. Yes, sir.

Q. Or a total journal-bearing surface in such cars, in 1897, of 4,249,503.3 square inches?—A. Yes, sir.

Q. Now, you then go on in this statement and show how many cars your road had in 1897 with journals 4¼ by 8 inches?—A. Yes, sir.

Q. And in 1897 you had no cars whose journals were 5 by 9 or 5½ by 10?—A. No, sir.

Q. Now, what do you find in 1897 was the total journal bearing surface of all freight cars in use on the Illinois Central?—A. There were 22,714 cars, and the total journal bearing surface was 8,445,171.3 square inches.

Q. And in 1906?—A. In 1906—do you want me to read the number of cars of the different types?

Q. The total number of cars and the total journal bearing surface.—A. The total number of cars was 55,575, with a total journal bearing surface of 27,393,685.384 square inches.

6723 Q. Now, between 1897 and 1906 what was the increase in numbers and per cent of freight cars operated by the Illinois Central?—A. The increase in the number of freight cars was 32,861, or 144.8 per cent.

Q. That is to say, in 1906 you were operating 144.8 per cent more cars than you were in 1897?—A. Yes, sir.

Q. While the increase of the percentage was 144.8 per cent, so far as numbers of cars were concerned, what was the increase in the journal-bearing or lubricating surface of those same cars?—A. The increase in the journal-bearing surface was 18,948,541.08 square inches, or 224.5 per cent.

Q. So that the increase in the journal-bearing surface is much greater proportionately, to the extent of almost 2 to 1, than the mere increase in the numbers of cars?—A. Yes, sir; due to the larger type of cars.

Q. Now, in 1897, for a period of 11 months, which was all that your contract covered that year, what was your total cost of lubricating for those 11 months on freight cars?—A. $33,992.23.

Q. Or about $3,000 a month?—A. Just about.

Q. So that would have made the cost of lubrication, figuring upon a 12-month basis, for the year 1897, for freight cars, about $37,000?—A. Yes, sir, about $37,000.

Q. Now, notwithstanding this increase of 144 per cent in the number of your cars and the increase of 224 per cent in the extent of
6724 the journal-bearing surface to be lubricated, between 1897 and 1906, what was the total cost of your freight-car lubrication in 1906?—A. $35,164.15.

Q. Substantially the same then as it was in 1897?—A. $2,000 less.

Q. $2,000 less, notwithstanding the great increase in the number of cars or in the extent of surface to be lubricated?—A. Yes, sir.

Q. In estimating the cost per thousand miles of lubrication is there any differentiation made because of the size of the cars, or is a large car figured in the same way, so far as car miles are concerned, as a small car?—A. You are speaking now of what class of cars—freight or passenger?

Q. Either.—A. You mean for the purpose of making these contracts?

Q. Yes, sir.—A. They include all cars; all cars are included, whether they are of a large or small type. A car is considered a car, whether it is a large car or a small car.

Q. And a car mile is a car mile, whether made by a large car or a small car?—A. Yes, sir.

Q. Will you, generally speaking, give us some idea of the extent of the territory covered by the Illinois Central system from north to south? Where does it run?—A. The Illinois Central system runs from Omaha, Nebr., on the west and north, and Albert Lea, Minn., on the north, passing through Chicago, on Lake Michigan; thence extending southwardly to New Orleans.

6725 Q. Do you get into the Dakotas?—A. With a branch line into South Dakota—Sioux Falls—and one into Sioux City, Iowa.

Q. Then, I take it, in the operation of your trains you are subjected to all kinds of climatic conditions?—A. We have the extremes of climate in the United States practically.

Q. And has that any relation to the quality of lubricating oil which is necessary for a railroad system to use?—A. It is very important that we have the quality of oil to meet the requirements in the different climates in which we operate. It takes a different grade of oil for the southern territory and a different grade for the northern territory.

Q. Who is it, Mr. Fritch, that selects the oils that are furnished to your road by the Galena-Signal Oil Company in so far as quality is concerned? Do the Galena experts do that in the first instance?—A. They make their recommendation on the quality of oil, the grade of oil, that is required for the different services.

Q. You may state whether the use of Galena oils by the Illinois Central road, during the years that you have been connected with the road, has been satisfactory or otherwise.—A. It has been satisfactory.

Q. Is there any relation between high rate of speed and lubrication?—A. There is.

Q. Will you explain that?—A. In a high rate of speed the

6726 tendency for a journal to become overhot is greater than at a slow speed, for the reason that the surface of the journal is exposed to the bearing surface more rapidly at high speed than it is at slow speed.

Q. And for that reason, I suppose, greater care must be exercised in the use of the lubricants and the quality of the lubricants?—A. It requires a higher grade of lubricant for high speed than it would for a lower speed.

Q. Does the Illinois Central keep any record of hot bearings or hot boxes?—A. Not a complete record.

Q. You may state whether, in your opinion, during your 24 years' experience as a railroad man, the number of hot-boxes in the operation of railroads has been reduced by means of the use of Galena-

Signal oil and the manner in which it has been used.—A. The number of hot boxes have very largely decreased, to my knowledge, within the last 12 or 15 years since Galena oil was used.

Q. The question was a little broader, perhaps, than your answer, Mr. Fritch. Is there any relationship between the decrease in the number of hot bearings and the use and manner of the use, the method of the use, and Galena-Signal oils?—A. Yes; there is. The greater attention paid to the proper methods of lubrication and the better grade of oil used have decreased the number of hot boxes.

Q. And is it not true that the greater attention that is being paid, and that has been paid, is largely due to the expert service of the Galena Company?—A. It is largely due to the instructions
6727 which our men have been given by the expert service of the Galena-Signal Oil Company.

Cross-examination by Mr. KELLOGG:

Q. On your road the men in immediate charge of the direction of the lubrication are your own men?—A. Yes, sir.

Q. They give directions to the men how to use the lubricants, how to economize, and how best to use them, do they not?—A. Our own men?

Q. Yes.—A. Yes, sir. Our foremen give instructions to the men under them how to apply the oil, the lubricants, and how to use them.

Q. Now, it is a fact, isn't it, that ten, twelve, or fifteen years ago there was very great waste and carelessness in the lubrication of cars on railroads, wasn't there?—A. How long ago?

Q. Oh, ten or twelve years ago, or fifteen years ago.—A. More so than there is to-day; yes, sir.

Q. And the principal reduction in hot boxes and improvement in the service has been the care with which the men have attended to the lubrication?—A. That is partly responsible for it.

Q. Well, that is the principal thing, isn't it?—A. No, sir.

Q. What is the principal thing?—A. The better quality of oil.

6728 Q. Well, you bought it from the same source, didn't you?—A. Not previous to ten or twelve years ago.

Q. When did the Illinois Central begin to buy of the Galena-Signal Oil Company?—A. 1892.

Q. From whom did it buy previous to that?—A. I don't know.

Q. You don't know, then, that it commenced in 1892?—A. I do.

Q. You don't know of what company it bought before that?—A. I don't know of what company it bought before 1892, but I know the first contract with the Galena-Signal Oil Company was made in 1892.

Q. Yes; but you don't know that it didn't buy its oil from some of the Standard companies?—A. No; I don't know.

Q. The Vacuum Oil Company, for instance.—A. No; I don't know that.

Q. So you don't know whether the same company sold the oil before 1892 that did afterwards?

Mr. ROSENTHAL. He has answered that he knows that it wasn't the Galena-Signal.

Q. What is your answer?—A. No; I don't know that.

Q. You don't know that the Galena-Signal didn't sell them oil before 1892, do you?—A. No; I don't know that.

Q. Now, in 1897, ten years ago, you used a good deal more lubrication on your cars than you do to-day, didn't you, of the same kind of oil?—A. More oil?

Q. Yes.—A. Ten years ago?

6729 Q. Yes, sir.—A. No, sir; not more oil.

Q. Didn't you use more than 70 per cent oil in 1897 than you are using to-day, per thousand mile run?—A. More oil?

Q. Yes, sir.—A. I haven't figured it out. I don't know.

Q. You don't know, then?—A. No, I haven't figured it out in gallons.

Q. Well, let us show you the exhibits.—A. I can tell if I see the exhibits.

Mr. ROSENTHAL. The question was, more oil per thousand miles run?

Mr. KELLOGG. Yes, sir.

WITNESS. I haven't seen the figures.

(Mr. Hunter shows Government exhibits to witness, also a tabulation of figures, and explains the same to him.)

The following question was read: "Didn't you use more than 70 per cent oil in 1897 than you are using to-day, per thousand mile run?"—A. Yes, sir. I am surprised that we have made such a good record.

Q. So there must have been a good deal of waste of oil in 1897 in the lubrication of freight cars, wasn't there?—A. The men were, perhaps, not so proficient in the use of it.

Q. Now, it is a matter of common knowledge, isn't it, that in the old style, even ten, twelve, or fifteen years ago, in lubricating freight cars, there was a great waste of oil?—A. It didn't receive the attention then that it does now.

6730 Q. And that was a matter of training your men to handle the oil, wasn't it?—A. It is largely due to that.

Q. Now, railroad men have made improvements in all branches of the service, haven't they?—A. Yes, sir.

Q. You don't pretend to say that this improvement would not have been made by the railroads themselves if the Galena-Signal Oil Company hadn't at the time done it, do you?—A. It wouldn't have been possible without their expert service.

Q. You don't think it would be possible?—A. No.

Q. Couldn't the railroad inaugurate this expert service?—A. They couldn't have inaugurated that service of themselves.

Q. You are willing to state that the railroads would have gone on and would have been obliged to go on wasting oil all these years if it hadn't been for the Galena-Signal Oil Company?—A. If it hadn't

been for their expert service, we couldn't have accomplished the result you have just stated.

Q. Although in all other branches of the service great economies and more efficient service have been brought about, yet in the oiling business there would have been no more economies or more efficient service but for the Galena-Signal Oil Company? That is your testimony, is it?—A. I say that without the expert service of the Galena-Signal Oil Company we could not have obtained these results in lubrication, for the same reason that we have not reached the results in fuel economy that we would have by the same means
6731 of inspection in our fuel service.

Q. Was there any such waste of fuel as there was of oil?—A. There was then and there is now.

Q. There is just as much waste now as there ever was?—A. Practically.

Q. And you men are unable to cope with it?—A. We would like to have expert service for our fuel bill in the same way we have expert service from the Galena Oil Company in our lubrication bill, if we could get it.

Q. Why don't you turn the coal business over to the Standard Oil Company?—A. We would like to do it on the same basis; would be very glad to.

Q. Well, hadn't they better run all branches of the railroad?—A. If they could make as good a showing in that as they have in lubrication, I think so.

Q. Well, you are turning it over pretty fast, I judge. Has there been any such saving in the engine as there has been in the cars?—A. You mean in lubrication?

Q. Yes, of engines.—A. You mean the same ratio of saving?

Q. Yes.—A. I am not able to say without looking at the figures.

Q. Now, I take it that you have tried to make up these figures with entire impartiality and fairness, have you?—A. Indeed, I have.

Q. So, in this statement, Defendants' Exhibit 21, you show that the cars have increased 144 per cent—the number of cars, from 1897 to 1906; that is correct, is it?—A. Yes, sir.

6732 Q. And then you show that the cost of lubrication has not increased. What is the conclusion that you wish to be drawn from that?—A. I didn't write it for the purpose of any conclusion. I simply stated the facts as they were.

Q. Why didn't you show in that statement the car mileage?—A. I can give you the car mileage if you wish it.

Q. Why didn't you put it in the statement?—A. I can give you that if you want it.

Q. Will you answer the question, please? Why didn't you put it in the statement?—A. It didn't occur to me to put it in the statement.

Q. It didn't occur to you?—A. It did not.

Q. You know, don't you, that the car mileage is the only basis of the expense of lubrication?—A. It is not the only expense.

Q. It is the only basis on which you figure the cost of lubrication—the car mileage—isn't it?—A. That is the unit of service we use.

Q. If a car is not in use and stands still all the time, it doesn't cost anything to lubricate it, does it?—A. It does.

Q. Not much?—A. If you have a car standing on a side track down in Louisiana, the lubrication would all run out of the boxes.

Q. But supposing it was standing up in Minnesota?

Mr. ROSENTHAL. Oh, that is too close to home.

6733 Q. Don't you know that while your cars increased 144 per cent in ten years the car mileage only increased 79 per cent?—A. That may be true according to the exhibits. I am not able to say without looking at them.

Q. What is your opinion about that?

Mr. ROSENTHAL. The facts are shown by the exhibits, aren't they, and are in evidence already?

A. I would rather look at the exhibits to give the exact figures.

Q. Were you directed to make this statement up in this form?—A. I was not.

Q. Who asked you to make this up?—A. I made that up of my own volition.

Q. And did you come here to testify of your own volition?—A. I came here to testify at the request of Mr. Harahan, our president.

Q. Who told you to make up this statement?—A. No one.

Q. What did Mr. Harahan tell you about making up this statement?—A. He told me nothing about making up the statement.

Q. Did he tell you to make up any statement?—A. He told me nothing about making any statement.

Q. This occured to you, did it?—A. It occurred to me.

Q. How did you know this would be required?—A. I didn't know it would be required.

6734 Q. What did you make it up for, then?—A. I made it up to show the relation between the conditions in 1897 and the conditions to-day.

Q. Now, then, if you were going to make that up fairly to show the relation between the conditions in 1897 and the conditions to-day as to the cost of lubricating you would show the miles the cars run, wouldn't you?—A. You already have that statement.

Q. How did you know we had it?—A. It is in your exhibits.

Q. How did you know we had it?—A. I heard you say you had it.

Q. Did you know it when you made this up?—A. I knew those figures were all in evidence.

Q. You did know it?—A. Yes, sir.

Q. You have been keeping track of this case, have you?—A. Not particularly.

Q. How did you know that statement was in evidence? You weren't present when it was put in, were you?—A. No.

Q. Who told you that that had already been put in evidence?—A. In our conference Mr. Crawford told me those matters were in evidence.

Q. Mr. Crawford told you how to make this up, didn't he?—A. He did not.

Q. Isn't it a fact that in order to show the comparative cost of lubricating in 1897 with that of 1906 it would be necessary, as a very important item, to show the car mileage?—A. That may be added.

6735 Q. Well, isn't that a fact? (Please read that question again.) I would like to have you answer the question, if you please.

The following question was read: "Isn't it a fact that in order to show the comparative cost of lubricating in 1897 with that of 1906 it would be necessary, as a very important item, to show the car mileage?

Q. Will you answer that?—A. It is very necessary to show the car-mileage basis; yes, sir.

Q. And you didn't show it in this statement?—A. I can add it if you want it.

Q. But you didn't show it in this statement, did you?—A. It wasn't made for that purpose, because you already have it.

Q. What was this made for?—A. For the purpose of showing the relative journal-bearing surface of cars in use on our railroad in 1897 and 1906.

Q. Then, why did you add the cost of lubrication?—A. Simply to show the relation between the total cost of lubrication and the total bearing surface of the cars for which we paid for lubrication.

Q. Then why did you put the 144 per cent of increase of cars in?—A. Simply to show that relation.

Q. Why did you put in the cost of lubrication in 1897 and 1906 for all cars, then?—A. Simply to show what it cost.

Q. You say it is necessary to show the car mileage in order to make a comparative statement?—A. It is not necessary.

6736 Q. A comparative statement wouldn't be at all accurate without it, would it?—A. That doesn't pretend to be a complete comparative statement of all elements.

Q. Now, as a matter of fact, the journal-bearing surface of your cars only increased 30 per cent per car; isn't that true?—A. No, sir.

Q. It is not? Will you figure it out?—A. I have already figured it out.

Q. What is the percentage of increase per car?—A. It is given on that sheet.

Q. Where is it? Per car, I am speaking of; the average per car.—A. What kind of car?

Q. Freight cars.—A. What sized journal?

Q. All of them put together; the average of all the freight cars.—A. That don't mean anything. That don't mean anything, to my mind.

Q. It doesn't?—A. It is a mere set of figures that don't mean anything. Might as well compare quarts and miles.

Q. Now, you say the journal-bearing surface has increased 224.5 per cent. Does that mean anything?—A. It means just what it says.

Q. Then, the average journal-bearing surface on each car would mean just what it says, wouldn't it?—A. It depends upon what kind of cars you are using. You certainly can't compare a car of 3¾-inch journal with a 5 by 10½.

Q. Now, you have shown the entire increase of journal-bearing surface on all the cars, haven't you?—A. Yes, sir.

6737 Q. Now, if you would divide the journal-bearing surface of all the cars by the number of cars, it would show the average per car, wouldn't it?—A. It wouldn't be a true relation of the average size of the journal at all.

Q. It would show the average per car, wouldn't it?—A. If you had the same number of cars of each type it would be all right, but you haven't got it. The average in that case doesn't amount to anything, it doesn't represent anything.

Q. Now, you have figured up the total journal-bearing surface?—A. Yes, sir, that means something.

Q. What does it mean?—A. It means the total bearing surface of all those cars. That represents the actual state of affairs, the facts exactly, as it says.

Q. In that total bearing surface there are many cars of different sizes?—A. Certainly.

Q. Some of one size and some of another?—A. Yes.

Q. What did you add them together for?—A. To show the grand total bearing surface.

Q. What was the object of showing the total bearing surface?—A. To show the total bearing surface we must lubricate. That means something.

Q. If you could add them together, why couldn't you find the average?—A. Because the average wouldn't amount to anything. Suppose you have ten apples, half of them the size of a pea and half of them the size of a watermelon, the average is half, isn't it? What would that mean to you?

6738 Q. Well, what does it mean to add them all together?—A. It means you have got the total of the two.

Q. Oh, it does?—A. I simply want to show you that the average doesn't amount to anything in that connection.

Q. And you left out of this statement the principal item that would make a comparative statement between the cost of lubrication in 1897 and the cost to-day?

Mr. ROSENTHAL. I will have to object to that upon the ground that it has been asked half a dozen times and answered half a dozen times.

Q. Mr. Fritch, who has made the contracts between the Galena-Signal Oil Company and the Illinois Central Railroad?—A. They are made directly by the purchasing agent of our company, subject to the approval of the president.

Q. Hasn't it been in the charge of Mr. Harahan and hasn't Mr. Harahan made those deals with Mr. Miller, the president of the Galena-Signal Oil Company?—A. Those, I think, are made by the purchasing agent, subject to the approval of the president.

Q. Hasn't that been solely in the charge of Mr. Harahan himself, except the mere detail of working it out?—A. Mr. Harahan turns that over to the purchasing agent; he makes the contracts, executes the contracts.

Q. Hasn't Mr. Harahan had conferences with Mr. Miller of the Galena-Signal Oil Company?—A. I don't know.

Q. You don't know that?—A. No, sir.

6739 Q. Now, the Illinois Central guaranty on locomotives was increased from $1.67 per thousand miles in 1906 to $2.20 per thousand miles, wasn't it?—A. Yes, sir.

Q. And the amount of shipments by the Standard Oil Company over the Illinois Central nearly doubled, didn't they, the next year?—A. I don't know anything about that.

Q. You don't know anything about that?—A. No, sir.

Q. Now, in the president's office don't you keep track of the business of the Illinois Central road pretty close?—A. Not in that way. We don't get a detailed statement of the amount of business shipped by each shipper.

Q. What company is the large shipper of mineral oil over your line of road?—A. The Standard Oil Company.

Q. That is, some one of the various Standard Oil companies?—A. Yes, sir.

Q. Substantially all of it, isn't it?—A. All of the mineral oil, you mean?

Q. Yes.—A. No, sir.

Q. Well, the larger percentage of it?—A. A very large percentage of it.

Q. 90 per cent?—A. I couldn't say positively.

Q. Probably 90 per cent, wouldn't it be?—A. I couldn't say, because I haven't the figures in my mind.

Q. There is a very large shipment from Whiting, Ind., over the various lines of your road, is there not?—A. Yes, sir.

6740 Q. And a large shipment from other points also? (No answer.)

Q. Now, is it not a fact that in 1906 there was received by the Illinois Central, for shipment of mineral oil, $292,825.02, and in 1907, $511,207.26?—A. I can't answer that.

Mr. ROSENTHAL. I object to that upon the ground that it is wholly immaterial.

Q. Your books show that, don't they?—A. The books must show it.

Q. Will you make me up a statement from 1901 down to the present time showing the receipts from the various Standard Oil companies?—A. Well, that is a very large piece of work to do, to go through all our records and make that statement.

Q. For all those years?—A. That would be a very big task to do that.

Q. You publish them in your reports, don't you?—A. No.

Q. You publish the shipments of mineral oil?—A. Well, that is the total for all shipments.

Mr. ROSENTHAL. I will have to object to that time being charged up against us, you know.

WITNESS. That is not a small matter, to pick that all out, you know.

Q. You know the Standard Oil Company is very much the largest shipper of mineral oil; in fact, nearly all of it is Standard Oil Company?—A. They are very large shippers over our lines.

Q. Do you know of any other company that ships any considerable quantity?—A. Yes, we have an oil field which is being
6741 developed on our lines now that ship a great deal of oil, outside of the Standard.

Q. How many years have you been with the Illinois Central?—A. About four years.

Q. How do you know that the Galena-Signal made its first contract in 1897?—A. I have seen the contracts.

Q. You looked them up, did you?—A. Yes, sir.

Q. When?—A. Within the past thirty days.

Q. You have looked into this Signal oil business a good deal in the last thirty days, have you?—A. I have looked into it, yes, sir.

Q. At the request of Mr. Harahan?—A. Yes, sir.

Q. Now, what is the percentage of the cost of lubrication of a railroad, of its engines, as compared with its freight cars and passenger cars?—A. That varies on different roads.

Q. On the Illinois Central?—A. Our percentage runs from 60 to 70 per cent. If I could see those exhibits I could tell you exactly. It would vary from year to year, of course. It runs between 60 and 70 per cent for locomotives. (After looking at Government exhibits.) The cost of lubrication of locomotives on the Illinois Central for the year 1906 was about 67 per cent of the entire cost of lubrication.

Q. Passenger cars what per cent?—A. About 7 per cent.

Q. Freight cars about 26 per cent?—A. About 26 per cent.

Q. Now, you stated that the weight of locomotives on the
6742 Illinois Central Railroad had increased, on an average, 30 per cent?—A. Yes, sir.

Q. But if you took into consideration the increased weight of the tenders on the same locomotives, it would make the increase 100 per cent?—A. No, sir; I did not say that.

Q. What did you say?—A. I stated that the average weight of locomotives in ten years had increased 30 per cent; that is, taking the average locomotive.

Q. Yes, sir.—A. But if you take the total weight of all our locomotives ten years ago, the total weight of all our locomotives in 1906, the increase is 100 per cent, adding the tenders. The exhibits will show that.

Q. Have you made up any statement of that kind?—A. The exhibit is in, I think.

Q. Where is it? I don't know of any such statement showing all of your locomotives ten years ago and all of them to-day.—A. Well, that was the statement, then, I made in connection with the other.

Q. You haven't got any such statement, then?—A. No; I think I made that statement when I referred to the average weight of the locomotives. I made the statement because I have the figures in my mind, just what the weights are. I looked that up.

Q. Will you give us a statement of all your locomotives ten years ago and all of them to-day? (No response.)

Q. Now, that only means that you have increased the number of your locomotives?—A. Yes, sir; it certainly takes into
6743 consideration the increased number of locomotives, but the total weight of our locomotives in 1897 and the total weight of our locomotives in 1906 is 100 per cent.

Mr. ROSENTHAL. In 1896?

WITNESS. In 1897; the total weight of our locomotives then as compared with the total of our locomotives in 1906 shows an increase of 100 per cent. The figures are 119,000,000 pounds in 1897 and 238,000,000 pounds in 1906.

Q. But not the same number of locomotives?—A. Why, certainly not; it couldn't be.

Q. In figuring your cost of lubricating you figure it per thousand miles run, don't you?—A. Yes, sir.

Q. So the number of locomotives is not important in that statement at all?—A. Oh, yes, it is; decidedly important.

Q. You pay for your oils on the mileage basis, don't you?—A. We have a guaranty at so much per thousand miles.

Q. And you pay for them on that basis?—A. If we don't meet the guaranty we are refunded. If the guaranty is less than the invoice price, of course we are refunded.

Q. If there is anything refunded, it is refunded on the mileage basis? It is arrived at on a mileage basis?—A. Certainly; that is the basis.

Q. Per thousand miles run of locomotives?—A. Yes, sir; that is the basis.

Q. Then, the cost of lubricating your locomotives for ten
6744 years has also increased 100 per cent, hasn't it?—A. Yes, sir; just about 100 per cent.

Q. And the car mileage, locomotive mileage, hasn't increased any such percentage?—A. I think not.

Q. Very much less than that?—A. Yes; but take the two together, will you, please. They are both very important elements when you consider cost.

Q. The payment per thousand miles has also increased, hasn't it?—A. Yes, sir.

Q. From $1.80 to $2.20 per thousand miles?—A. No, I think that is wrong. $1.67, I think, to $2.20.

Q. $1.62 to $2.01?

Mr. ROSENTHAL. I have those figures here now. Mr. Steinbrenner has just compiled them and I would like to put them in.

Mr. KELLOGG. I will put them in if you give me time.

Mr. ROSENTHAL. I have them in tabulated form, made up from the exhibits you have already put in, and I would like to put them in either now or when you get through.

Mr. KELLOGG. Certainly, you can put in anything you please when I get through.

Mr. ROSENTHAL. And I would like to give you the opportunity to cross-examine him upon the figures as we have tabulated them.

Mr. KELLOGG. I think I can cross-examine him on the figures just as well without your assistance.

Mr. ROSENTHAL. Very well.

Q. The cost per thousand miles of your locomotives has in-

6745 creased from 1897——

Mr. ROSENTHAL. I hand the witness a tabulated statement so that he may have the figures before him.

Mr. KELLOGG. Just let me see it. (After looking at the paper.) All right; put it in if you want to.

Mr. ROSENTHAL. I offer in evidence defendants' Exhibit 22, showing the total mileage and total cost and cost per one thousand miles on the Illinois Central for the years 1897 to 1906, inclusive—locomotive, passenger, and freight cars—the same being the actual cost to the railroad.

Q. Now, then, based on your own statement here, the cost of lubricating your engines increased about 100 per cent during that same time?

Mr. ROSENTHAL. Oh, no.

Q. Total cost of lubricating your engines, 100 per cent.

Mr. ROSENTHAL. The total cost of lubricating the engines increased about 100 per cent by this statement; yes, sir. Total cost in dollars.

Mr. KELLOGG. Yes; that is what I say—total cost.

Q. And the cost per thousand miles from $1.59 to $2.01, in 1906—per thousand miles?—A. That is right.

Q. While the locomotive mileage only increased from 24,000,000 to 39,000,000 miles, practically?—A. Why do you say "only?"

Q. Is that correct?—A. It is a larger increase than it is in the cost.

6746 Q. Is it correct—24,000,000 to 39,000,000 miles?—A. If that is taken from the statements in evidence, I suppose it must be right.

Q. You say it is less than the increase in the cost?—A. I say it is a greater increase in the mileage than it is in the cost.

Mr. ROSENTHAL. Per thousand miles?

WITNESS. Per thousand miles. Shows about a——

Q. Now, the Illinois Central pays the full invoice price, doesn't it, and has for ten years?—A. Yes, sir.

Q. Forty-eight cents a gallon, 28 cents a gallon, and 18 cents a gallon, respectively?—A. Yes, sir.

Q. For valve, engine, and car oils?—A. Yes.

Q. Practically, then, the cost of lubricating your engines per thousand miles run has increased about the same as the weight?—A. Just about the same; yes. Leave the mileage out of consideration.

Q. No; you have to take the mileage into consideration on a mileage basis.—A. No; I won't agree to that. If you are going to consider the whole question now, you have got to take the mileage into consideration.

Q. I am taking it into consideration.—A. Well, then, I will change my answer.

Q. What do you say?—A. I would like to have the question repeated, please.

Q. I asked you if the cost per thousand miles run of your locomotives hadn't increased substantially in the same ratio as the
6747 average percentage in cars—or, I would say, the percentage of average increase of the weight of the locomotives.—A. You mean the cost?

Q. Per thousand mile run of locomotives.—A. The bare cost in figures, yes.

Q. Yes, that is what I thought. That necessarily takes in the——A. It doesn't take in all the elements, I beg your pardon.

Q. What other element is there?—A. The element of weight.

Q. The element of weight?—A. The element of weight.

Q. That is what I said; that is what I based my question upon.—A. An increase——

Q. The average weight of your locomotives, you say, has increased 30 per cent?—A. The average weight, yes, sir; and the total weight 100 per cent.

Q. No, the average weight has increased 30 per cent, hasn't it?—A. The average weight don't mean anything.

Q. Will you please answer my question? You are not an advocate here in this case, you are just a witness. Please answer my question.

Mr. ROSENTHAL. No, but he wants to answer them intelligently.

Q. The average weight of your locomotives has increased 30 per cent, hasn't it?—A. Taking all classes, yes.

Q. Now, the average cost per thousand miles run of your locomotives has increased about 30 per cent, hasn't it?—A. The average what?

6748 Q. Cost per thousand miles run of your locomotives, about 30 per cent, perhaps a little under 30 per cent.—A. About a little over 20 per cent.

Q. Now, take 1897 to 1907; what was the percentage? Figure it out, please.—A. Why don't you take 1906? That is a little more favorable.

Q. I asked you that first. I will take 1906.—A. Do you want the percentage?

Q. Yes.—A. (After figuring.) It is a little less than 32 per cent.

Mr. CRAWFORD. What year was that?

Mr. KELLOGG. 1905.

Q. From 1897 to 1903 what was it? What was the increase?—A. 1903?

Q. Yes.—A. You are picking out the high years all right.

Q. Yes, sir; I am. I will pick out the low ones pretty soon.—A. (After figuring.) About 39 per cent.

Q. Now, from 1897 to 1906 what is the percentage?—A. About 26 per cent.

Q. When you said 20 per cent or a little over 20 per cent, you were wrong, weren't you?—A. I just did that mentally. These are accurate figures. I didn't do that intentionally.

Q. I would suggest you be a little careful about your statements, then.—A. I will, sir. I would like to state the whole truth while I am stating it.

Q. That is what I want.—A. I don't like to tell just half
6749 of the story when the other half remains untold. Perhaps you would like to have me explain the reasons for these increases.

Q. Well, you have been explaining for two or three hours. If you will just answer my questions, Mr. Fritch. Now, have you given a great deal of attention to the study of the lubrication of railroads?—A. I have.

Q. You have studied the cost on other railroads?—A. Not to any great extent on other railroads, except those with which I was connected.

Q. Have you studied the cost of lubrication on any other roads except with those you were connected?—A. Not as a special feature.

Q. Have you ever at all?—A. Yes, sir; in connection with statistics.

Q. In connection with statistics?—A. Yes, sir.

Q. Well, prior to two years ago were any statistics published showing the cost per thousand-mile run of engines, cars, for lubrication on railroads?—A. The annual reports of railroads show the cost of oil, tallow, and waste used.

Q. Yes; the gross cost.—A. Shows the unit service cost also.

Q. It is all added together so you can't separate it, in the report, isn't it?—A. Some of them are and some of them show the oil separately.

Q. What roads show them separately?—A. I couldn't tell you offhand.

6750 Q. Have you investigated the cost on the Pennsylvania road?—A. No, sir.

Q. On the Southern Pacific?—A. No, sir.

Q. On the Central of Georgia?—A. No, sir.

Q. On the Buffalo, Rochester & Pittsburg road?—A. No, sir.

Q. Now, the Pennsylvania company and its lines west of Pittsburg, from 1897 down to 1903, had a guaranteed cost of engine service lubrication of 74.6 cents per thousand miles, as shown by the exhibits in this case furnished by the Galena-Signal Oil Company. Your company from 1897 to 1900 had $1.80—more than twice as much,

hadn't it?—A. If those are the figures, it would be twice as much; yes, sir.

Q. Now, the Pennsylvania company passenger-car service was 6.3 cents per thousand-mile run?

Mr. ROSENTHAL. You mean the guaranty?

Mr. KELLOGG. The guaranty.

Q. Yours was 25, except the year 1897, when it was 35.46 cents?—A. Yes.

Q. The Pennsylvania company freight-car guaranty was 5.3 cents and yours was 10.3 cents; is that correct. (Handing witness paper.)—A. What year do you refer to, please?

Q. From 1897, say, to 1903.—A. 10.36 cents.

Q. Do you know of any reason why the Pennsylvania company should have had a guaranty of less than half the Illinois Central, and on freight cars less than half—on passenger cars, about one-quarter of your company?—A. Do I see any reason?

6751 Q. Yes.—A. I can't see any reason because I don't think there is any reason why there should be any difference. That doesn't govern the cost of our service.

Mr. ROSENTHAL. What was that?

WITNESS. That doesn't govern the actual cost of our service.

Q. The guaranty doesn't? Now, you paid 48 cents a gallon, 28, and 18, respectively, for valve oil, engine oil, and car oil, and the Pennsylvania Company paid practically 38 per cent of that. In other words, you paid 100 per cent and they paid 38 per cent of the invoice price. Do you see any reason for that?—A. I don't know what price they paid.

Q. Well, it is admitted in evidence here it was 38 per cent.—A. Of what?

Q. Of the invoice price of their oil.—A. How are those figures arrived at? I am not familiar with those figures.

Q. They are arrived at in the same way yours would be if you took your guaranty and reduced it below the 100 per cent. Their contract is the same as yours except as to the figures. They got a very much lower guaranty. Now, can you see any reason why they should have guaranties as low as that and that they should only pay 38 per cent of the invoice price while you paid 100 per cent?—A. Well, I can see the reason for it and can see why the figures came out that way. It showed that they used more oil than we did.

6752 Q. Very well. But their guaranties are less than half yours.—A. They have not been educated up to the use of oil like we have.

Q. But the guaranties were less than half of yours. The company guaranteed the cost to the Pennsylvania per thousand miles at less than half of what yours was.—A. It showed they used more oil.

Q. Is that any reason?—A. Yes, that is the reason.

Q. That is the reason why the Galena-Signal Company should give them their oil at less than half of what they did you?—A. I suppose when the Pennsylvania Company made their contract with the

alena-Signal Oil Company they were using that quantity of oil, and t was based on that use that the contract was made.

Q. Then your position is that the company that uses more oil hould get lower guaranties and a less price?—A. Well, isn't that ensible?

Q. That is sensible, is it? Per thousand miles?—A. Their total il used. I am not saying "per thousand miles."

Q. That is giving them a premium on extravagance, isn't it?—A. In that case it is.

Q. And that is good business?—A. Not at all.

Q. Tell us some reason why you think the Pennsylvania Company should get their oil on a guaranty of less than half your company?

6753 Mr. ROSENTHAL. I submit he has answered it just now.

WITNESS. I will answer it again if you want it.

Q. Answer it.—A. Because they were using a larger quantity of oil when the contract was made than we were.

Q. How do you know they were?—A. The figures show it.

Q. When they made their contract in 1897, how much oil was the Pennsylvania Company using?—A. The figures show it. I don't know. I am simply reasoning from deductions from your own statements.

Q. Then, do you think the Pennsylvania Company is extravagant in its use of oil?—A. I would judge so from the amount they use.

Q. And because it is extravagant in its use of oil they should be given a lower guaranty per thousand miles cost?—A. That had something to do with making the first contract, I suppose, on that basis.

Q. But as a railroad man, looking at this from an economical standpoint, you think the Galena-Signal Oil Company should guarantee them a low cost because they are extravagant in the use of oil, do you?—A. I can't answer that as a railroad man. You said "as a railroad man."

Q. Yes. You are a railroad man, aren't you?—A. Yes; but the oil business isn't my business. I don't know what the Galena-Signal Company's motive was in making that contract. We only know this, that we have as favorable a price per gallon under our contracts as any other railroad.

6754 Q. You have?—A. Yes, sir.

Q. Let us see about that. You pay 48 cents per gallon for valve oil, don't you?—A. Yes, sir.

Q. The Pennsylvania Company pays 18½ cents for the same oil, doesn't it?

Mr. ROSENTHAL. That is not what the witness said. He said they had as favorable a contract.

Mr. KELLOGG. Read what he said.

The following portion of the preceding answer was read: "I know only this, that we have as favorable a price per gallon under our contracts as any other railroad."

Q. You pay 48 cents a gallon, don't you?—A. Yes, sir; for the invoice price.

Q. And you don't get anything back, do you?—A. Because we use——

Q. Well, do you get anything back?—A. We haven't, no, sir, for ten years.

Q. Then, you pay actually 48 cents a gallon, don't you?—A. Yes, sir.

Q. The Pennsylvania Company actually pays 18½ cents a gallon, don't they?—A. I don't know what they pay.

Q. Will you look at the exhibit and see?—A. I haven't seen their contract.

Q. If they pay 38 per cent, they pay about 18½ cents per gallon, don't they?—A. Their invoice price, I presume, is the same as ours; I don't know.

6755 Q. Yes; it is the same as yours.—A. Then they pay the same per gallon as we do.

Q. If they get 64 per cent back, they don't ultimately pay the same per gallon, do they?—A. I said the invoice price per gallon; that is all I said; I am not referring to anything else.

Q. You know, don't you, that all railroads have the oil invoiced to them at 48 cents a gallon, 28 and 18, don't you?

Mr. ROSENTHAL. I object upon the ground that it is apparent, from what the witness has already said, that he doesn't know anything about the price which any other roads pay or contract for excepting the road that he has been connected with, and that the purpose of the cross-examiner here is manifest—to get the witness to institute a comparison, if possible, between his road and other roads that he has already said he doesn't know anything about.

Mr. KELLOGG. He has just said they got as low a price per gallon as any other road. Now, I want to find out what he knows about that.

Mr. ROSENTHAL. No, he hasn't; he has just said that the contract price under these contracts, as he views it, is the same with all of them, and that you know to be a fact.

Mr. KELLOGG. Very well; then, I will start right there and ask him that.

Q. Is the contract price, the invoice price, the same to all railroads?—A. Yes, sir, as far as I know from our contract.

Q. That contract price is 48 cents, 28 cents, and 18 cents,

6756 respectively, isn't it?—A. Yes, sir.

Q. Now, is that the price that the railroad ultimately pays after it has made a settlement—all of the railroads?—A. I don't know with regard to other roads than our own.

Q. Well, you know your company pays the full price and doesn't get anything back?—A. Yes, sir.

Q. Now, then, the exhibits in evidence show that the Pennsylvania Company West pays only 38½ per cent of the invoice price. In other words——

Mr. ROSENTHAL. Wait a moment.

Mr. CRAWFORD. That is not true. It hasn't been true for years.

Q. In other words, that the Pennsylvania Company West gets back 62 or about 62 per cent of the invoice price.

Mr. ROSENTHAL. I object to that upon the ground that it assumes that which is not true under the evidence in this case.

Mr. KELLOGG. It is an average for ten years.

Mr. CRAWFORD. No, it is not the average, and it hasn't been for years.

Mr. KELLOGG. Well, get the 1906 exhibit furnished by the Galena-Signal Oil Company and see.

Mr. ROSENTHAL. I object to it, furthermore, for the reason it is not cross-examination and the witness hasn't pretended to know
6757 anything about what the Pennsylvania contract is, and the Pennsylvania contract shows for itself just what it is and the exhibit shows just what the facts are. This was all put in evidence six months ago and you got it all in the newspapers last fall, and you are trying to get it in the newspapers again, and that is the only purpose of this cross-examination. It has no relevancy to the issues in this case, and you know it.

Mr. KELLOGG. Now, if you have got through, I will go ahead.

Mr. ROSENTHAL. I want to interpose the general objection to the cross-examination, conducted for the benefit of our friends at the other table. I refer the gentlemen of the press to the New York press of last October to get this same material.

Q. Now, I show you Petitioner's Exhibit 459, furnished by the Galena-Signal Oil Company, showing the settlement with the Pennsylvania Company, which is the line west of Pittsburg, excluding the Pan Handle, for the year ending February 28, 1906, which shows on its face that the per cent of refund was 63 per cent of the invoice prices, and ask you if that is correct?

Mr. ROSENTHAL. I object upon the ground that the exhibit shows for itself whether it is correct or not. This witness hasn't any knowledge of whether it is correct and doesn't pretend to have any knowledge.

6758 Mr. KELLOGG. Well, is it correct, Mr. Rosenthal, or isn't it?

Mr. ROSENTHAL. I am not on the witness stand. You have got that in. What is the date when that exhibit was offered? Does that appear?

Mr. KELLOGG. If it is not correct, your company having furnished it, we would like to know it.

Mr. ROSENTHAL. I have not challenged its correctness. I am challenging the knowledge of this witness as to its correctness.

(The last question was read.)

Q. Is that substantially correct?—A. Yes, sir.

Q. That means, then, that the Pennsylvania Company substantially ultimately paid about 37 per cent of the invoice price of 48, 28, and 18 cents a gallon, doesn't it?—A. No, sir.

Q. What does it mean?—A. Right there by those figures it shows that it costs them about $4 a thousand miles on their engines for oil that somebody has to pay for, against our $2 and less.

Q. Now wait a moment. The oil, according to this statement, was sold to the Pennsylvania Company at an invoice price of 48 cents a gallon, 28 cents a gallon, and 18 cents a gallon, wasn't it?—A. Yes.

Is the quantity used the same?

6759 Q. Just stick to the price; I will ask you about the quantity. The price per gallon of oil was 48, 28, and 18 cents, wasn't it, to the Pennsylvania Company?—A. That is the price.

Q. Now, then, the Pennsylvania Company, we will say, used a large amount of oil. The Galena Signal Oil Company, instead of charging the Pennsylvania Company forty-eight cents, twenty-eight cents, and eighteen cents, the invoice price, ultimately charged them sixty-three per cent of that, didn't they, for the gallons of oil actually furnished?—A. No; for the total amount of oil used.

Q. For the gallons of oil actually furnished they charged them thirty-seven per cent of it, didn't they?—A. For the price per gallon, you say?

Q. Yes, sir?—A. No, sir.

Q. For the gallons of oil furnished the Pennsylvania Company actually paid thirty-seven per cent of the invoice price, didn't they?—A. Of the total amount; yes.

Q. That is what I asked you.—A. Of the total amount, yes; but not of the price per gallon.

Q. Of the total amount of gallons of oil?—A. Of the total amount of money, not of the price per gallon.

Q. Very well. Now, let's us. How many gallons of oil did the Pennsylvania Company have during that year?—A. Locomotive oil?

Q. Yes, sir.—A. Valve oil, 126,488¼; engine oil, 130,053¾; car oil, 130,351½.

6760 Q. Figured at forty-eight cents for the valve oil, twenty-eight cents for the engine oil, and eighteen cents for the car oil, what was the total price of all of the oil furnished during that year?—A. According to this statement?

Q. Yes, sir.—A. $121,390.46.

Q. What did the Pensylvania Company, when it finally settled—take all three services, the cars and everything—what was the total amount?—A. $169,231.42.

Q. Now, that is figured at forty-eight cents, twenty-eight cents, and eighteen cents a gallon, isn't it?—A. At the various respective amounts of gallons used; yes, sir.

Q. $169,231.42?—A. Yes, sir.

Q. That is correct, is it?—A. That is right.

Q. Then, what was the price they ultimately paid for all that?—A. Their guaranty was——

Q. What was the price they ultimately paid for that?—A. $62,310.23.

Q. That is about thirty-seven per cent of the total amount, isn't it?—A. Yes, sir.

Q. Then the Pennsylvania Company did actually pay for the number of gallons it used about thirty-seven per cent of the invoice price, didn't it?—A. Not of the invoice; the total cost of the oil, yes.

Q. That total cost of the oil, in the first instance, was the
6761 invoice price, wasn't it?—A. The total cost of the oil, they paid thirty-seven per cent of it. They got their oil mighty cheap.

Q. Now, your company paid 100 per cent, didn't it?—A. Yes, and we were satisfied with what we paid for it.

Q. I know you are perfectly satisfied.—A. Because we didn't use four times as much oil as the Pennsylvania, and therefore, we didn't have to pay for it.

Q. When the Pennsylvania Company used more oil, they ought to get it for a less price, I suppose?—A. Certainly; wholesale quantity, you always get it.

Q. Did you hear Mr. Steinbrenner's testimony, that they were furnishing oil to the Pennsylvania Company at a loss?—A. Yes, sir.

Q. You think, if they sell a lot of oil to the Pennsylvania they can afford to sell at a loss, do you?—A. I suppose they can, if they do.

Q. And I suppose you have been as fair and candid in all your testimony here as you have been on this last question, haven't you?—A. I don't know what you mean.

Redirect examination by Mr. ROSENTHAL:

Q. How do you regard this contract with the Galena-Signal; as a contract for the sale of oil per gallon, or as a contract for lubrication at a cost per one thousand miles?—A. We regard it as a contract for the lubrication of our railroad, for locomotive, passenger car, and freight car service.

6762 Q. And the initial cost per gallon, as shown by the invoice prices, is a matter of absolutely no consequence at all, is it?—A. We don't regard it so.

Q. That merely makes a basis of settlement each month?—A. That is all.

Q. Will you please look at Defendants' Exhibit 22? That exhibit shows that in 1897 the cost per one thousand miles, for lubricating locomotives, was $1,599, and in 1906, was $2,014. That shows an increase in the cost of lubrication for one thousand miles during those years, does it not?—A. Yes, sir.

Q. I understood you to say while you were being cross-examined, that there were reasons for that increase, which you desired to state. Will you please state them.—A. The reasons are, for the increase in the weight of our locomotives in the last period as against the former period.

Q. And that increased weight takes with it increased journal bear-

ing surface for lubrication, and an increased number of parts to be lubricated, does it not?—A. Yes, sir. Our modern engines have——

Q. And an increased ratio in the use of finer oils, as you explained this morning?—A. Yes, sir.

Recross-examination by Mr. KELLOGG:

Q. You said the Pennsylvania Company West used four times
6763 as much oil as the Illinois Central. Did you know what you were talking about when you said that?—A. Your figures show it, don't they?

Q. Do they show that?—A. That is the way I figured them over roughly in my mind. It may be more or it may be less than that. I didn't figure them out. I just looked at the figures—glanced at them.

Q. Well, it is very much less, isn't it?—A. I will figure it out for you. (The witness was handed a paper.) It is about twice as much, instead of four.

Q. About twice as much instead of four times as much?—A. Yes. Those figures I arrived at by simply glancing at the figures.

Q. In making a contract for the Illinois Central with the Galena-Signal Oil Company, what do you endeavor to do? Get your cost per thousand miles as low as you can, or get it as high as you can?—A. We try to get a guaranty as high as we can.

Q. You do?—A. We try to get a guaranty to cover as high a cost as possible.

Q. That is, you try to pay them as much as possible for the oil?—A. No, sir; we do not. You don't understand my answer.

Q. You try to get as low a guaranty for a thousand miles as you can get, don't you?—A. I don't understand your question.

Q. I ask you if you try to get a high guaranty or a low guaranty?

6764 Mr. ROSENTHAL. It depends on the point of view.

WITNESS. What side are you dealing with? That is the point.

Q. What do you try to get—$2.50 or $1.50?—A. We try to get an economical cost for lubrication; that is what we try to get.

Q. Per miles run?—A. Yes, sir; to ourselves. We don't care for the other side.

Q. Now, if you were making a new contract with the Illinois Central, if you could get that guaranty for locomotive mileage down to $1.50, you would like to do it, wouldn't you?—A. We would like to get the very lowest favorable contract we could, certainly.

Q. Now, will you answer that question?—A. I did.

Q. Your last year's contract for locomotive mileage was a guaranty of $2.20 a thousand miles, wasn't it?—A. Yes, sir.

Q. In making another contract, would it be favorable to your company to get that at $1.50 or $3?—A. It would be favorable to get it at $1.50.

Q. Then you would try to get it as low as possible?—A. Yes, sir.

Q. Then if the Pennsylvania Company got its guaranty on locomotives for less than half of yours, during certain years, and its pas-

senger car mileage for about one-quarter of yours during cer-
6765 tain years, they get a better contract, don't they?—A. I can't answer that without you let me see that exhibit again. (After referring to an exhibit.) Here is a cost of $1.30.

Q. That is the last three years?—A. Yes; compared with ours, $2.20.

Q. $2.20 the last year.—A. That is not twice as much. We were using twice as much oil.

Q. In 1903 theirs was 74 cents and yours was $1.80, wasn't it?—A. I don't remember the figure for the same year that you speak of there, but taking 1906 of ours and 1906 of theirs, theirs is $1.30 and ours is $2.20.

Q. Then they had a better contract than you, hadn't they?—A. Not necessarily; conditions are different. You can not compare the Pennsylvania Railroad with the Illinois Central Railroad. The conditions are entirely different.

Q. What are the elements that go to make a high cost per thousand miles run?—A. The quantity of oil used, the service, etc.—the service in which the guaranty is made.

Q. I mean what elements in the railroad—heavy equipment?—A. Yes, sir.

Q. The Pennsylvania Company have as heavy equipment as yours, haven't they?—A. Yes.

Q. Heavier, is it not, on the average?—A. Not necessarily heavier; no, sir.

Q. Well, it is heavier, is it not, whether it is necessarily heavier or not?—A. It is not heavier.

Q. The entire equipment of the Pennsylvania and Pan-
6766 handle——.—A. You are speaking of the entire equipment. I was not speaking of the entire equipment. I was speaking of the average.

Q. The Pennsylvania line west of Pittsburg—I mean the Pittsburg & Fort Wayne road from Pittsburg to Chicago—isn't its equipment as heavy as yours on an average?—A. Yes; not heavier.

Q. Wouldn't it average heavier than yours?—A. No; it wouldn't.

Q. Have you made any comparison?—A. No; but I know from general knowledge it isn't.

Q. You have a great many branch lines where your equipment is light, haven't you?—A. So have they.

Q. Where?—A. They have branches just as we have.

Q. What branches; where their equipment is light?—A. You know them as well as I do—the Pennsylvania system.

Q. No; I ask you.—A. The Pennsylvania system has a lot of branches.

Q. The Pennsylvania line from Pittsburg to Chicago—the Pittsburg, Fort Wayne & Chicago road—where are its branch lines with light equipment? Name them.—A. You know those short lines. I can't call them offhand, but you know them as well as I do.

Q. I thought you couldn't.—A. I can, if you give me time.

Q. Now, take the entire Pennsylvania Company, and you state, do you, that its equipment is no heavier than the entire Illinois Central?—A. Than the entire?

6767 Q. Yes, averaging the whole equipment.—A. No, it is not.

Q. You have never made any comparison?—A. I have made a comparison in my mind, right now. I know it is not.

Q. You don't know the size of their engines, or how many large engines they have, or how many small ones, do you?—A. I know they have a good deal more mileage than we have, if you are speaking of the Pennsylvania Company.

Q. I am not speaking about mileage, I am speaking of the average equipment.—A. Well, that is an element.

6768 J. T. ODELL, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. ROSENTHAL:

Q. Where do you live, Mr. Odell?—A. New York City.

Q. How long have you lived here?—A. Ten years.

Q. What is your occupation?—A. I have no specific occupation at present.

Q. Are you connected with any railroad companies?—A. I am connected with five or six railroad companies.

Q. Please state what railroads you are connected with.—A. At the present time?

Q. Yes, sir.—A. Do you mean companies that I am a director of?

Q. Either an officer or a director of.—A. I am president and director of the Colorado and Northwestern Road; I am the nominal vice-president of the Pittsburg, Pennsylvania & Lake Erie Road; I am president of the Marquette & Bessemer Dock & Navigation Company (Lake Erie); I am a director in the Kansas City, Mexico & Orient Railroad; I am a director in the Kansas City Outerbelt Railroad. There are some more of them, but I can't think of them.

Mr. KELLOGG. I am willing to admit that he is qualified as a director.

6769 WITNESS. There are about fifteen of them, but I guess I won't go any further.

Q. How long have you been in the railroad service?—A. Thirty-two years.

Q. Where did you begin?—A. Do you mean as an official? I have been thirty-two years in an official capacity.

Q. When was your first connection with any railroad?—A. 1865.

Q. In what capacity?—A. Telegrapher.

Q. What road?—A. It was then the Atlantic & Great Western; now the Erie.

Q. With what roads have you been actively connected since then, and in what capacities?—A. I was division superintendent of the Atlantic & Great Western; division superintendent of the Union Pacific——

Q. When were you division superintendent of the Union Pacific?—A. In 1876.

Q. And for how many years?—A. Four years. I was division superintendent, superintendent of transportation, and assistant general manager of the Northern Pacific.

Q. During what years?—A. From 1882 to 1887. From 1887 to 1889 I was general manager of the Chesapeake & Ohio. From 1889 to 1893 I was general manager of the Baltimore & Ohio; from 1893 to 1896 I was vice-president of the New York & New England Railroad, and from that time I went with the Steel Company—was president at the time, president of the road from Pittsburg
6770 to Lake Erie, and subsequently vice-president for five years. Since that time I have remained the nominal vice-president and director.

Q. When you were general manager of the Baltimore & Ohio Railroad did you come in contact with the question of lubricating that road?—A. I came in serious contact with it.

Q. Will you please tell us about that?—A. When I went to the Baltimore & Ohio Railroad they were using a lubrication of their own make—a mixture of crude oil and animal fat. It was a lubrication that hadn't any body. Most of it appeared to be on the roadbed and ballast ties. And I became alarmed for the safety of the trains. I have known as many as sixty hot boxes on one train.

Mr. KELLOGG. In what year was that?

WITNESS. 1889.

Q. You have known as many as what?—A. As many as sixty hot boxes on one train. And I insisted on throwing it off the road, and I adopted the Galena oil, without contract, without guaranty.

Q. With what result?—A. With the result that there was a saving in one year—I won't pretend to say the exact amount, because they burned the records up over there in the fire, but it was a very considerable amount—about $50,000.

Q. And with what result, so far as the efficiency of the oil was concerned?—A. Well, we practically eliminated the hot boxes.

Q. What other personal experience have you had in your long
6771 and varied railroad career with other lubricating oils than the Galena, besides this B. & O. experience?—A. I have had experience with a number of oils, but I have never had a success with them, for the reason of the lack of uniformity in the quality, which I consider the real value of the Galena oil.

Q. Will you go into that a little more specifically?—A. Well—we had frequently—to start out with, some concern would sell us oil which would be very good for a while, and which would be followed later on by a defective lot of oil, and hot boxes would follow; the results were very unsatisfactory.

Q. When you went with the New York & New England Railroad, about 1893, what oils were they using for lubricating purposes?—A. That oil was purchased from Swan & Finch.

Q. And what other oils have you used?—A. I can't call the names of them, but I guess everything in the United States.

Q. How extensively have you come in contact with the use of the Galena-Signal oils, during all of these years?—A. The first Galena signal oil that I used was on the New England Railroad that I remember of. I adopted that in a peculiar way; I didn't think I was adopting it, but I did.

Q. Had you used it on the B. & O. before you used it there?—A. I don't remember what oil I did use. I used their valve and engine oil there, but I don't remember the signal oil.

6772 Q. I unintentionally limited my question. I didn't mean the signal oil. I mean the oil of the Galena-Signal Company.—A. Oh! I didn't know that that was the name they went by. They have a signal oil that they burn in lanterns.

Q. Yes, I know. I don't intend to limit the question to the use of that particular quality of oil. What I meant was, when did you first come in contact with the oils of the Galena Company?—A. I think I saw the first consignment about 1871 or 1872; it was in my town.

Q. What town was that?—A. Meadville. The railroad that I was dispatcher of ran to Franklin where this oil was.

Q. And you have been in more or less close contact with the oils of that company ever since, haven't you?—A. Yes, sir; ever since.

Q. Generally speaking, how have you found the oils of the Galena Company, compared with the oils of other concerns that you have used or seen used?—A. Oh, well, there is no comparison so far as that goes.

Q. What do you mean by that?—A. Well, I never was able to get any oils that would run cool, except the Galena oil.

Q. How important is this question of lubrication in the operation of a railroad?—A. You can't operate a road successfully without perfect lubrication.

Q. And is it of any special importance in connection with the operation of fast trains that have come in during recent years?—A. It is of vital importance. There wouldn't be any fast trains without proper lubrication.

6773 Q. And by "proper lubrication," you have reference to what? The quality of the oil used?—A. Absolutely, the quality of the oil used.

Q. Just what do you mean by "lubrication" in railroad parlance? I wish you would give us an exact and technical explanation of that, so that we may have it in the record.—A. I don't know as I can give you a technical explanation of it. By "lubrication" we mean the holding of the film between metals where there is friction.

Q. That is, wherever two metal surfaces come together, the film of lubrication is between those two surfaces?—A. Yes, and it must be held there.

Q. And that involves, of course, the use of waste?—A. Yes, sir, in some instances.

Q. In the lubricating of boxes?—A. In the lubricating of car boxes and journals.

Q. How do the number of hot boxes nowadays compare with the number of hot boxes ten to fifteen and twenty years ago?—A. Well, I have become considerable of a traveler in the last ten years, and very seldom encounter a hot box; I don't know that I could tell one if I did see one.

Q. That is, you very seldom encounter a hot box now?—A. Very seldom.

Q. And how was it ten or fifteen or twenty years ago?—A. You go back to my Baltimore & Ohio experience, and I don't see much else but hot boxes.

Q. What do you attribute the improvement in that regard
6774 to?—A. I attribute it to the character of the oils that are now used, and the care and supervision given it by the Galena Company's inspectors.

Q. How important, in your judgment as an old railroad man, is the matter of expert inspection by the experts of the Galena Company?—A. Oh, I think it is highly important. I believe that the success of the whole thing is due to their efforts.

Q. What do these experts do in a general way?—A. These experts teach them the economical use of the oils, and they also, so far as my experience goes, act as sort of an assistant to the mechanical department on any subject they want to ask him about. These people travel about, observe the practices of the best railroads, and they impart the information, I suppose, to the other roads.

Q. What, in your judgment, would be the effect of one railroad system using one kind of lubricating oil, and another railroad system using a different kind of lubricating oil?—A. Do you mean an inferior kind?

Q. Yes, an inferior kind; assuming that cars are interchanged on these two systems, that their relative position is such that an interchange of cars is involved.—A. What would be the effect on the interchange business?

Q. The question is, what would be the effect upon the operation of the system using the higher grade of oil?—A. It would have this effect: that the road that used the higher grade would probably pull the packing out of the other stuff and pack it with decent oil, and go on about the business. That would be the effect of it; that
6775 has been the effect of it.

Q. Well, a lack of uniformity upon different railroad systems whose cars are interchanged, both passenger and freight, is an element of considerable importance, is it not, in the operation of railways?—A. Certainly it is.

Q. And the road using the higher grade of oil and getting the more efficient lubrication is not only interested in its own cars and in its own rolling stock, but is measurably interested in the cars and rolling stock of the other road, is it not?—A. They certainly are, because they have to repack those boxes with good oil out on the road.

Q. And that increases of course the expenses of the road using the superior oil?—A. Yes, sir.

Q. And not only that, but I presume that cars coming from a road using inferior oil, being subjected to the danger of hot boxes, hot bearings, might, because of that, disturb the operation of the other road using the superior oil, might it not?—A. Yes, sir.

Q. And that is a very important element to be considered, isn't it?—A. Very, indeed.

Q. And for that reason it is desirable that the various railroad systems of the country use a uniformly good oil, isn't it?—A. Absolutely.

Q. When you went to the New England road in 1892 or 1893, I understand you to say that they were using oil that you think was purchased from Swan & Finch?—A. Yes, on the cars.

Q. And what other lubricating oils were they using?—A. We used the engine oil, valve oil, of the Galena Company.

6776 Q. Did you have any test at that time, to determine which was the superior oil, that you remember?—A. No, I didn't keep any record of that, but I got rid of it as quick as I could.

Q. Got rid of what?—A. Of all oils except the Galena.

Q. Even the Swan & Finch oil?—A. Yes, threw it all out.

Q. The Swan & Finch Company at that time was largely, if not entirely, owned by the Standard Oil Company, wasn't it?—A. I don't know; I don't know anything about the Standard Oil Company—any of their oils.

Q. Did you have any difficulty with the purchasing agent of the New York & New England road at the time you went to that road, in 1893, with respect to the use of signal oil?—A. I didn't have any special trouble with him. I thought he had convinced me we were using the best signal oil, and I directed him to take five lanterns and fill them at 8 o'clock in the morning and put them out at a temperature of two or three degrees below zero (which it happened to be at that time in Boston), and at 5 o'clock whichever showed the brightest light would be the oil we would use, irrespective of whose oil it was. It happened to be the Galena's.

Q. The result of that test showed that the best signal oil at that time, of the five oils that you tested, was the Galena signal oil?—A. Yes, sir; it was on that day, at any rate.

Q. To what extent is the element of first cost considered by
6777 a railroad company in connection with its lubricating oil?—A. The first thing to be considered is safety.

Q. What do you mean by that?—A. I mean by that that there is great danger in defective lubrication.

Q. You regard that as the——A. As the paramount thing.

Q. As the paramount consideration?—A. Yes, sir.

Q. To get the lubricant which will give you the safest lubrication?—A. That is the idea, sir.

Q. And in your long experience, extending over all these years,

what lubricating oil do you say, of all the oils that you have ever come in contact with, accomplishes that result?—A. The Galena.

Q. Now, to get back for a moment to the use of the experts, do these experts have anything to do with the teaching of the railroad employees the more economical use of the oils?—A. Well, that is what they are there for—to teach the economical use of the oils, to come within the guaranty.

Q. What, in your judgment, then, as a railroad man of experience, would be the effect of teaching the employees the more economical use of lubricants, in so far as it had any relation to the more economical use of other railroad supplies?—A. It inspires them to economy in the uses of all the supplies. I notice particularly that some of the roads are employing expert firemen to teach the firemen how to fire—just as much money saved that way as there is in oils, I guess, as far as it goes.

6778 Q. Do you know whether or not these experts, among other things, in addition to looking after lubrication pure and simple, call the attention of the railroad officials to those mechanical defects which might affect lubrication?—A. I don't know what they have done to others; they have to me—called my attention to it.

Q. How extensively is that done, in your experience?—A. I have had my attention called particularly to the construction of trucks, and I have discussed various questions of operation with these experts that have traveled over other roads.

Q. Advantageously?—A. Oh, yes; always learn something when away from home.

(Adjourned to 10.30 a. m. May 27, 1908.)

6779 ROOM 722, CUSTOM-HOUSE, NEW YORK CITY,
May 27, 1908—10.30 a. m.

The hearing was resumed before the special examiner, Hon. Franklin Ferriss, at the above time and place.

Present: On behalf of the petitioner, Mr. Frank B. Kellogg, Mr. Charles B. Morrison, Mr. J. Harwood Graves; on behalf of the defendants, Mr. Moritz Rosenthal, Mr. Frank L. Crawford, Mr. W. Cleveland Runyon.

J. T. ODELL, recalled, and his direct examination resumed:

By Mr. ROSENTHAL:

Q. Mr. Odell, how do you regard the Galena contract; as a contract for the sale of oil or for lubrication?—A. It is a contract for lubrication.

Q. Tell just what you mean by that.—A. The contract calls for a certain number of miles of valve oil, a certain number of miles of engine oil, a certain number of miles of freight-car oil, to the pint of oil, irrespective of the cost.

Q. Irrespective of the price per gallon?—A. Yes; irrespective of the price per gallon.

Q. That is, the contract states a certain invoice price, which is the basis of a monthly settlement, and then the contract guarantees a certain maximum price for a thousand-mile run?—A. Yes, sir.

Q. Of the various kinds of oil?—A. Yes.

6780 Q. That you regard as a contract for lubrication rather than a contract for the sale of the oil pure and simple?—A. Correct.

Cross-examination by Mr. KELLOGG:

Q. What do you know about the Standard Oil contract? Are you familiar with its form?—A. The Standard Oil contract?

Q. Yes; the Galena-Signal Oil contract.—A. Well, not especially so.

Q. What is the form of the contract as to the sale of oil?—A. The contract calls for a specific number of miles for a pint of valve oil, a number of miles for a pint of engine oil, a number of miles for a pint of coach oil, and a number of miles for a pint of freight-car oil.

Q. Now, did you ever see such a contract in your life?—A. No; I never saw it.

Q. Then, you don't know whether it calls for any such thing or not?—A. Only what I have been told.

Q. Now, as a matter of fact, the contracts are all in evidence, or a large number of them, and I ask you to look at it and see if you find anything of that kind in it. [Placing a Government exhibit before the witness.] The contract commences here at the top.—A. (After having looked at the exhibit.) Section 10 is the nearest to it. There must be a subsequent contract that covers section 10.

Q. Is there a word in that contract about the number of

6781 pints to a mile, or anything about it at all?—A. No. There must be another contract. Section 10 provides for it.

Q. Have you ever seen any other contract than this one?—A. No; I never saw one. I never had occasion to use any of them.

Q. You don't know anything about them, do you?—A. No; I am not representing any railroad.

Q. Well, you have been testifying that this was a contract for lubrication. I want to see what you know about it. Now, section 10 says: "The second party agrees to furnish the first party reports monthly, upon blanks furnished by the first party, showing the mileage made by all locomotives, passenger and freight cars, the quantities of each kind of lubricants consumed in the lubrication of each class of service, and the cost of each class per thousand miles run; also, a correct and complete inventory of lubricants on hand at the date of the commencement of this contract, and annually during the term hereof." Now, do you know of any other contract than this?—A. Only what I have heard; there is another contract.

Q. How do you know it is a contract for lubrication instead of the sale of the oil?—A. Because I understand that the other contract calls for a certain number of miles.

Q. You do understand it?—A. Yes.

Q. You don't know that yourself?—A. No; I don't know that.
Q. You have never seen one?—A. No; I never had occasion to look at any.
6782 Q. Then, your opinion isn't worth anything on the question of whether it is a contract for lubrication——A. That is for you to say.
Q. Well, what do you believe?—A. I think it is.
Q. You never have seen the contract?—A. I have been told all about the contract.
Q. Then, you base your opinion purely upon what you have been told about it?—A. Yes.
Q. How many years since you have been in the active operation of a railroad?—A. Ten years.
Q. When you went to the Baltimore & Ohio as general manager, you testified yesterday as follows: "When I went to the Baltimore & Ohio Railroad they were using a lubrication of their own make—a mixture of crude oil and animal fat. It was a lubrication that hadn't any body. Most of it appeared to be on the road bed and ballast ties, and I became alarmed for the safety of the trains. I have known as many as sixty hot boxes on one train." That is correct, is it?—A. Yes.
Q. Then, the Baltimore & Ohio wasn't using refined petroleum oil, but was using a crude oil mixed with fat?—A. Yes.
Q. Well, that was a very crude thing, wasn't it?—A. Indeed, it was; the worst I ever knew of.
Q. They were not buying their regular lubricating stocks of any lubricating company, were they?—A. No, sir.
Q. Or any manufacturing company?—A. No, sir.
6783 Q. Either of the Standard Oil or anybody else?—A. Nobody else.
Q. Now, there were at that time a good many manufacturers of lubricating oils?—A. I presume there were, yes.
Q. Who were they?—A. I don't know who they were.
Q. You don't know anything about it, do you?—A. Nothing but the Galena, that is all I know about.
Q. That is the only one you know of. They were manufacturing at that time, were they?—A. Oh, yes.
Q. You don't know what other companies there were?—A. I knew there were companies selling oil, but I don't know as they advertised a special lubricating oil for railroads.
Q. You don't know whether there was any other company manufacturing lubricating oil in the United States except the Galena, do you?—A. Yes, I do.
Q. Who were they?—A. There was a firm in Philadelphia Boshart & Wilson.
Q. You knew nothing about their oils, did you?—A. Oh, yes; we used it on one division.
Q. What division?—A. On the Philadelphia division.

Q. But the oil you complained of was a mixture of crude oil and fat, that they were making themselves?—A. Yes. I didn't disturb the other oil.

Q. It was satisfactory, was it?—A. No, it wasn't.

6784 Q. Why didn't you disturb it, then?—A. They said they would make it satisfactory, but they didn't. It was afterwards disturbed, after I left the road.

Q. But while you were there you didn't disturb it?—A. No.

Q. When did you leave the road?—A. In 1893.

Q. Don't you know, as a matter of fact, that the B. & O. got a reduction in their contract with the Galena-Signal Oil Company—A. I made no contract with the Galena.

Q. Just wait until I finish the question. Don't you know, as a matter of fact, that the Baltimore & Ohio subsequently got a reduction in its contract with the Galena-Signal Oil Company because of a bid made by the Union Petroleum Company, which was the successor of Boshart & Wilson?—A. I never heard of it.

Q. You don't know anything about that at all?—A. I don't know anything about that at all.

Q. Who had charge of the lubricating on the Baltimore & Ohio road when you were there?—A. Our own people.

Q. Who were they?—A. The master car builder and our carmen.

Q. Who was the purchasing agent?—A. A man by the name of Buckley, while I was there.

Q. Do you know Mr. Bankhard?—A. Oh, yes. He was not purchasing agent, though, when I was there.

Q. He afterwards became purchasing agent. Now, when you made up your mind to quit lubricating with crude petroleum, did you ask for bids from any other companies?—A. I did not.

Q. Did you inquire as to whether there were any other companies?—A. I did not.

6785 Q. Did you look into the subject technically, yourself?—A. I certainly did.

Q. What did you do?—A. I sent to the Galena Oil people and told them to go to work and lubricate this road—part of it.

Q. You call that making an investigation into Galena oils?—A. I do, as I had already investigated it.

Q. What other investigation did you make?—A. I was familiar with it from the time it started.

Q. Familiar with what?—A. With Galena oil.

Q. Yes, but I mean what investigation had you made into other companies furnishing lubricating oil?—A. I made no investigation. I had a disastrous experience with them, and went to the people.

Q. Your disastrous experience was with the Baltimore & Ohio furnishing its own lubricating oils, wasn't it?—A. No, disastrous experience on other roads.

Q. What other road?—A. The Erie Railroad.

Q. When did you go to the Erie road?—A. I was brought up on the Erie road originally.

Q. In what position?—A. Division superintendent, finally.
Q. Division superintendent where?—A. At Meadville.
Q. What year?—A. I left there in 1876.
Q. 32 years ago?—A. Yes.
Q. You had a disastrous experience at that time with other lubricating companies?—A. We were buying oil indiscriminately, and, continually, hot boxes and accidents.
Q. You were buying oil indiscriminately in 1872, did you
6786 say?—A. 1876.
Q. Thirty-two years ago. The lubricating of cars was in a very crude condition in those days, wasn't it?—A. Very.
Q. And there wasn't any such thing as the Galena-Signal Oil Company, was there?—A. No, not the Galena-Signal Oil Company. There was a copartnership.
Q. There was a copartnership, and there was a Vacuum Oil Company, was there?—A. Yes.
Q. And a large number of other oil companies?—A. Yes.
Q. And you bought oil indiscriminately and lubricated your own cars?—A. I hadn't anything to do with the purchasing of it.
Q. You hadn't anything to do with it?—A. No.
Q. And you paid no particular attention to it, did you?—A. All I was after was good oil, to keep the trains running.
Q. Yes, but it wasn't under your charge?—A. Not at all.
Q. You were division superintendent?—A. Division superintendent.
Q. And that is the experience you are talking about on the Erie Railroad?—A. That is the best experience you can get.
Q. Thirty-two years ago.—A. Yes.
Q. I suppose railroad service has improved some in 32 years?—A. Indeed, it has.
Q. Outside of the Galena-Signal——A. Yes, it has improved in every direction.
Q. You are not willing to admit that railroad men themselves haven't improved the efficiency of railroad service in all its
6787 branches?—A. You say I am not willing to admit it?
Q. Yes.—A. I certainly do admit it.
Q. You say they have improved it?—A. Certainly, I do.
Q. In all its branches?—A. In all its branches.
Q. They have done that by studying the subject, haven't they, themselves?—A. Yes, sir, and by meetings, exchanging views, etc.
Q. That is, railroad men meet other railroad men of other roads and exchange views?—A. Yes, sir.
Q. The master mechanics meet, don't they?—A. Yes, sir.
Q. The superintendents meet, or the managers?—A. The managers meet.
Q. The auditors meet, don't they?—A. Yes, sir.
Q. The purchasing agents meet, don't they?—A. That I don't know.

Q. Well, a good many other men, having charge of—the engineers meet, don't they?—A. Yes, they meet in their lodges.

Q. And they exchange views with each other throughout the railroads, don't they?—A. I don't know what the engineers do; the rest of them do.

Q. And this exchange of ideas and studying the subject has been very beneficial to the railroads, in the management, hasn't it?—A. Very, indeed.

Q. And in all branches of service——A. In all branches of service.

Q. Railroads have improved wonderfully in twenty years?—A. Indeed, they have.

6788 Q. Now, you don't pretend to say that the lubrication of cars and engines would not have improved on railroads but for the Galena-Signal Oil Company, do you?—A. No one can answer that question.

Q. You know that railroad men, in all branches of the service, are as bright as any men in the country, don't you?—A. Certainly.

Q. And that if they had not turned the lubrication over largely to the Galena-Signal Oil Company they would have done it themselves, wouldn't they?—A. They may have done it themselves.

Q. It is likely they would, isn't it?—A. They certainly would have got good lubrication, otherwise they wouldn't be running the road.

Q. It is no more difficult than any other branch of the service, is it?—A. No more difficult for the Galena Oil to invent good lubrication than for the Westinghouse to invent an air-brake; the railroads didn't invent that.

Q. Well, this oil wasn't invented, was it?—A. The oil was made by a formula—and it is a very good one, too.

Q. Do you know anything about what the formula is?—A. No; I don't suppose they would give that away.

Q. You don't know what it is?—A. No, I don't.

Q. You don't know that there are any other companies that make the same thing?—A. I don't know of any other companies.

Q. You don't know anything about it, do you?—A. I don't know anything about it.

6789 Q. No, I thought you didn't.—A. I don't want to know anything about that part of it, for that matter.

Q. Now, as a matter of fact, don't the contract expressly specify the ingredients, and isn't it a fact that there is no patent on it at all?

Mr. ROSENTHAL. I submit he ought to be shown the contract before that question is answered.

A. The contract may show the ingredients, but it doesn't show how the ingredients are to be applied in the manufacturing of it.

Q. You mean, applied to the cars and engines?—A. No, I mean the proportion of the ingredients.

Q. Oh, the proportion, certainly not. Now, when did you go to the New England Railroad?—A. In the fall of 1893.

Q. Were you here yesterday when Mr. Fritch was testifying?—A. I heard a portion of his testimony.

Q. Did you hear him testify that the Baltimore & Ohio Southwestern bought oil from an independent company, and that it was very satisfactory?—A. Yes. If you want me to tell you why it was satisfactory, I will.

Q. Why was it?—A. Because the officers owned it.

Q. They did?—A. Oh, yes.

Q. Who were the officers?—A. I would rather not tell.

Q. Just please tell us. You are making statements rather recklessly. I want to know who they are.—A. Mr. W. W. Peabody was the vice-president.

6790 Q. What was the company they owned?—A. I don't know the name of it. It was located at Marietta.

Q. Wasn't it the Argand Refining Company?—A. I don't know; I never heard what it was.

Q. And isn't it a fact that they sold it out to the Standard Oil Company?—A. I really don't know that.

Q. You don't know anything about it?—A. No.

Q. Do you know how much he owned in it?—A. No, I do not.

Q. You don't know, then, that at that time he hadn't sold it out?—A. No, I don't know anything about it. We were not running the B. & O. Southwestern then, you know.

Q. Who was Mr. W. W. Peabody?—A. He was vice-president of the Baltimore & Ohio Southwestern.

Q. So at that time you don't know whether he had sold it out to the Standard Oil Company or not?—A. I don't know anything about it.

Q. And you don't know what the name of the company was?—A. I do not. It didn't interest me, for that matter.

Q. Then, what you heard about his ownership is mere hearsay, isn't it? You didn't know it of your own knowledge?—A. No, I didn't know it of my own knowledge.

Q. Now, about when was it that you went to the New England road?—A. November, 1893.

Q. That was 15 years ago?—A. Yes, sir.

Q. Sixteen years ago, or about that. You say the New England road was buying its car oil at that time of Swan & Finch?—A. Yes, sir.

6791 Q. And you quit that and turned over the contract to the Galena-Signal Oil Company?—A. No, sir.

Q. What did you do?—A. I started to quit it.

Q. What?—A. I undertook to quit it, but it became known that I was going to quit it and influence was brought to bear upon the receivers to use an oil manufactured at Providence—which I had never heard of before. I was notified by the receiver that if any change of oil was to be made I would use that oil; and, as a choice between two evils, I kept what I had until the close of the receivership, and then, at the request of the New Haven Railroad, I made a contract with the Galena-Signal Oil Company.

Q. Now, Swan & Finch was the Standard Oil, wasn't it?—A. Not that I know of.

Q. You don't know that?—A. I don't know anything about it at all.

Q. It is admitted in this case that Swan & Finch was the Standard Oil.—A. Well, it must be so, then.

Q. So, the Standard Oil Company brought influence to bear on you, did they?—A. No.

Q. On the receivers?—A. No, sir.

Mr. ROSENTHAL. That is not what he said.

Q. Who were the manufacturers in Providence?—A. I don't know anything about it.

Q. You don't know anything about it?—A. That is the reason I didn't want to take it.

6792 Q. Does the Boston & Maine operate the New England road now?—A. No; the New Haven owns it now.

Q. The New Haven owns the New England?—A. It is a merger now.

Q. Didn't the Boston & Maine operate it at one time?—A. No. You must have reference to the time that Mr. McLeod went over there. He had the Boston & Maine and the New England, but he never consolidated them.

Q. Does the New England road stock belong to the New Haven?—A. All of it, I believe.

Q. Now, isn't it a fact that Swan & Finch still have the contract with the Boston & Maine, and New England, and those roads?—A. I haven't the slightest idea.

Q. You don't know anything about it?—A. Not a thing about it.

Q. Don't they sell the Galena-Signal oils up in that country?—A. Who?

Q. Swan & Finch.—A. I don't know.

Q. And didn't they sell the Galena-Signal oil or the vacuum oil of the Standard at that time, when you were on the New England road?—A. I don't know anything about it.

Q. Then, you don't know whether the oils were really made by the Galena-Signal Oil Company or not?—A. I have no idea.

Q. And you don't know where Swan & Finch got their oil?—A. I haven't the slightest idea.

Q. Then, your opinion as to whether the oils that you were using on the New England were as good or not as good as the

6793 Galena's is not worth much?—A. No; they were not as good as the Galena's.

Q. Supposing Swan & Finch were selling Galena oils?—A. I know they were not selling Galena oils.

Q. How do you know it?—A. Because we analyzed it.

Q. Who analyzed it?—A. A chemist.

Q. Who was the chemist?—A. Tiersley.

Q. Now, the Standard Oil Company always controlled the Galena-Signal Company and the Galena-Signal Oil Company, didn't they?—A. Not that I know of.

Q. You don't know whether they did or not?—A. I haven't the slightest idea.

Q. It appears in this case that they had controlled them since 1882, and controlled the consolidated company.—A. They may have controlled them since 1850, for all I know about it. I don't know anything about it.

Q. Did your chemist ever analyze the Galena oils?—A. Not that I know of.

Q. Then, what good did it do you to analyze the Swan & Finch oils, if you didn't analyze the Galena's? How did you make a comparison?—A. I knew by experience what the Galena was.

Q. You knew by experience what ingredients they contained?—A. Oh, not especially; no. I knew they had a good reputation.

Q. Did you ask while you were on the New England road,
6794 for any bids from any companies except the Standard Oil Company?—A. I didn't ask for any bids from anybody.

Q. You didn't make any investigation of other companies at all?—A. No, sir.

Q. You simply intended to take the lubrication from one Standard Oil Company and give it to another?—A. The New Haven Road purchased the New England just before I left. They requested me to make the same contract with the Galena people that they had, and I had left the road, although my resignation had not taken effect. I signed that contract about the last thing I did.

Q. That was with the Galena-Signal Oil Company?—A. Yes.

Q. Now, the Standard Oil Company were large shippers over the New England and New Haven roads, weren't they?—A. I really don't know what they were on the New Haven Road. I don't know whether the Standard Oil Company did ship over the New Haven; I never inquired whose oil it was.

Q. There was nobody else shipped into New England, to amount to anything, except the Standard Oil Company, did they?—A. Well, then, it was they that shipped over our road. They didn't give us anything that they could get away from, not a carload.

Q. The New Haven Road had very large shipments from the Standard Oil, didn't they?—A. Yes; the New Haven Road touched us in about 27 places, and they got all the business.

6795 Q. They had a number of Standard Oil directors, didn't they—the New Haven?—A. I don't know anything about that.

Q. Don't you know that they do now?—A. I don't know who their directors are. I lost all interest in them.

Q. Did you have any Standard Oil directors in the New England road?—A. No, indeed.

Q. You were in the hands of a receiver?—A. We were in the hands of a receiver and even after the receivership, when the New Haven took it, they didn't have Standard Oil directors in.

Q. But they had it in their own company, didn't they?—A. I presume they did.

Q. You know that Mr. William Rockefeller is a director of the New Haven, don't you?—A. I do not. I know that he is a director of the New York Central.

Q. Now, the Baltimore & Ohio, when you were with the Baltimore & Ohio, was very large shipper of Standard Oil products?—A. Possibly.

Q. Don't you know it is a fact?—A. No; I do not.

Q. You don't know.—A. No; I don't know who did own the oil. All those things came up with the traffic manager, not with me.

Q. You didn't pay any attention to it?—A. I didn't pay any attention to it at all; just to get the stuff over the road.

Q. You know it was a large shipper of oil?—A. Oh, not so very large.

Q. Quite large?—A. Well, possibly, but not so very large.

6796 Q. As a matter of fact, hasn't the Standard Oil Company always been a very large shipper over the Baltimore & Ohio road, sir?—A. I don't know.

Q. Well, do you know anything about handling the Union Tank Line cars?—A. No. I used to see them. I don't know anything about it personally.

Q. You used to see a great many of them on your road, didn't you?—A. Quite a number.

Q. You knew that was a Standard Oil concern, didn't you?—A. No; I did not.

Q. You don't know anything about the Standard Oil Company?—A. I don't know a thing about it. I know one or two of the officials. They don't interest me.

Q. They don't?—A. Not the slightest.

Q. Never have?—A. Never have.

Q. And you didn't know the Galena-Signal Oil Company belonged to the Standard Oil Company?—A. I did not know a relationship existed between them at all; never inquired, and didn't care.

Q. When was it you were on the Atlantic & Great Western?—A. I was a telegraph operator on the Atlantic & Great Western in 1865.

Q. You haven't been connected with that road for a good many years?—A. Well, that road is wiped out; it is merged with the Erie.

6797 Q. You haven't been connected with the Erie for a good many years?—A. Not since 1876.

Q. And you have not been in the active operation of railroads for ten years?—A. No.

Q. And during that period you haven't paid any attention to the question of lubrication of railroads at all?—A. Well, I have traveled a good deal and discussed the matter with the boys considerably.

Q. You have traveled the same as I did, I suppose, over railroads?—A. Yes, I travel more than you do.

Q. Do you?—A. Yes.

Q. Well, I shouldn't be surprised. Have you had any actual experience with lubrication, in the last ten years, other than traveling?—A. Yes.

Q. What?—A. I am president of a navigation company—and that used Galena-Signal oil, and I didn't put it on either.

Q. What is the navigation company?—A. The Marquette & Bessemer Dock & Navigation Company, across Lake Erie.

Q. I never heard of it.—A. You ought to hear of it, it is a big thing; owned by the Steel Corporation.

Q. Well, I really ought to, that is a fact. Now, what have you had to do with the lubrication of the steamers of that company?—A. I haven't had a thing to do with it, but I was on a ship the other day and asked the captain what oil he was using, and he said he was using Galena oil. I said: "That is a good thing." He said: "That is the only thing I can use."

6798 Q. According to that, I have inquired and find that all the railroads in the United States use it. I must have had a great experience.—A. Yes; I have great respect for the opinion of 97 per cent of the officers of railroads in the United States.

Q. So have I. Now, don't you know, as a matter of fact, that a very large amount of the marine lubrication is done by independent companies?—A. I have no idea about that.

Q. You don't know anything about that?—A. No; I have not the slightest idea.

Q. And you know, don't you, that marine lubrication requires the finest oil, the highest experience, and the very best service?—A. I thought so when the Government bought Galena oil.

Q. Don't you know that the Government does not buy anywhere near all of its oil from the Galena Company?—A. I don't know anything about that.

Q. And that it doesn't buy a gallon of Galena oil at all?—A. All I know is what I saw in the paper.

Q. When did you see it in the paper?—A. I think it was given prominence right after your last hearing here, if I recollect right.

Q. Was that not the Vacuum Company?—A. I don't know. They said "Galena"—the paper I read.

Q. It was the Vacuum Oil Company; and isn't it a fact that the independent companies have a very large amount of that business?—A. I don't know.

6799 Q. You don't know?—A. I don't know anything about it at all.

Q. All you know is what you saw in the newspaper?—A. That is all I know about it.

Q. Is that the kind of experience that you have been testifying to in the last day?—A. That is the kind of experience that I am testifying to, as far as this belief business is concerned.

Q. Do you know the Louisville & Nashville road?—A. Oh, yes; I have traveled over it.

Q. Quite a large system, isn't it?—A. Very.

Q. Who is the president?—A. Mr. Milton Smith.

Q. A pretty good man?—A. An excellent man.

Q. You would have a good deal of confidence in Mr. Smith's judgment, wouldn't you?—A. In matters of what?

Q. Operating the road, lubricating it, or anything else.—A. I would have a great deal of respect for his judgment in operating a railroad.

Q. And in the lubrication of the road?—A. He ought to know all about it.

Q. Do you know that the New York Lubricating Company, within a very few years, immediately, say, prior to 1906, or 1905, lubricated the Louisville & Nashville road with perfect satisfaction to that road?—A. I do not.

Q. You don't know anything about it?—A. It don't interest me any.

Q. You don't think Mr. Smith would turn the business over to them unless it was satisfactory, do you?—A. I shouldn't
6800 think he would.

Q. Now, I would like to read you a letter from Mr. Smith, dated February 9, 1905. (Reading:)

"PHILIP HARRISON, Esq.,

"*Manager Sales Department, New York Lubricating Company,*

"*New York City.*

"SIR: Your favor of the 30th ultimo duly received. Although I had heard no complaint relative to the quality of the oils, etc., furnished under contract of March, 1903, I nevertheless asked Mr. Theodore H. Curtis, superintendent of machinery, to advise me as to quality of lubricants furnished by the New York Lubricating Oil Company, under contract of March 1st, 1903. The following is an extract from a communication from him, dated the sixth inst.: 'I have given the subject of lubrication my personal attention, and can say, unhesitatingly, that the oil and lubricants furnished by the New York Lubricating Company are entirely satisfactory, and I believe them to be as good as any furnished heretofore.'

"Yours, truly,

"M. H. SMITH,

"*President.*"

Now, in addition to that, it appears that Mr. Smith wrote other railroads to the same effect—that it was entirely satisfactory.—A. No reason why it shouldn't be.

Q. No reason why it shouldn't be, is there?—A. No.

Mr. ROSENTHAL. It doesn't appear in this record that he wrote any other railroad, or that he wrote any railroad. And it won't appear.

Q. Well, I will read you a letter of December 7, 1903.

"Mr. P. P. HOUSTON,

"*Purchasing Agent.*

"DEAR SIR:——"

Mr. ROSENTHAL. Just a minute. Is that a letter you are reading from the record in this case?

Mr. KELLOGG. No, sir; I am reading this letter to——

6801 Mr. ROSENTHAL. Well, I object to it, upon the ground that the examiner is assuming the existence and the verity of this alleged letter, when there is not any proof that such a letter was ever in existence; *non constat*, they never have been in existence; *non constat*, it may be a forgery.

Mr. KELLOGG. Yes, we are apt to read forged letters from Mr. Smith.

Mr. ROSENTHAL. And the examining counsel knows that the witness doesn't know anything about any such letter; he knows that he has not proved any such letter in this record. I object to it for those reasons.

Q. Now, I read you a letter dated December 7, 1903:

"LOUISVILLE & NASHVILLE RAILWAY COMPANY,
"PRESIDENT'S OFFICE,
"*Louisville, Ky.*

"Mr. P. P. HOUSTON,
"*Purchasing Agent.*

"DEAR SIR: I return herewith letter from Mr. D. Fairchild, Purchasing Agent of the New York Central & Hudson River Railroad, received with your memo. of this date. There is no objection to advising Mr. Fairchild that we have contract with the New York Lubricating Oil Company, that the quality of oil, deliveries etc., have so far been perfectly satisfactory.

"Yours, truly,
"M. H. SMITH,
"*President.*"

Now, you don't believe Mr. Smith would write such a letter unless it was true, do you?

Mr. ROSENTHAL. I object to that, and I beg to advise the witness that he need not assume the existence of any such letter as that, because it has not been proven in this case.—A. I believe Mr. Smith to be a man of veracity.

6802 Q. And there is no reason why that company shouldn't furnish good lubricants, is there?—A. I don't see any reason why.

Q. You don't believe the Galena-Signal Oil Company is the only one that can furnish it?—A. I don't know that they professed to be.

Q. You don't believe they are the only company that can furnish it?—A. I believe they can make good oils. I have bought good oils and paid more for it than I did to the Galena.

Q. And you have bought it and paid less, haven't you?—A. I have bought oils and paid less, and bought good oils and paid more.

Q. And you have never had any oils offered to you any cheaper than the Galena?—A. Not good oils, no.

Q. You don't know that several railroads in this country have been lubricated a great deal cheaper than the Galena, and just as well?—A. I don't know as to that.

Q. You don't know that?—A. I don't know a thing about it.

Q. Do you know whether the L. & N. paid very much less under this contract than they paid the Galena-Signal Oil Company?—A. I haven't the slightest idea what they paid.

Q. And never looked into the subject?—A. No, I never had occasion to look into the subject.

Q. You never investigated the subject of lubricating any other road except the Baltimore & Ohio and the New England roads?—A. No; all the other roads that I have been with used Galena before I went with them.

6803 Q. And you paid no attention to it?—A. No.

Q. Have you ever been over the Louisville & Nashville road?—A. I have been over part of it.

A. I have been over part of it.

Q. Quite a large system, isn't it?—A. Very.

Q. Now, you said on the Baltimore & Ohio, your company saved about $50,000 by making a contract with the Galena-Signal Oil Company, over furnishing it itself?—A. I think it was more than that, but I wouldn't want to state it.

Q. Do you know how much the total contract was—the cost?—A. No; I don't know. I know about the prices we paid.

Q. What prices did you pay?—A. We paid seven cents for the stuff that they were making.

Q. The Galena-Signal?—A. No; we paid seven cents a gallon for this grease they turned out; that is, that the old company turned out; and eighteen to the Galena.

Q. That is, it cost the Baltimore & Ohio seven cents to make the old stuff?—A. Yes.

Q. You bought crude oil and put some tallow in it?—A. Yes.

Q. That never has been known to make a good lubricant, has it?—A. It did very well on the track.

Q. You were not greasing the track, though, were you?—A. They did; they had it all pretty well greased.

Q. Did you ever know of any railroad company to use, any length of time, crude petroleum as a lubricant?—A. I never

6804 heard of anything like it, except the Baltimore & Ohio. They owned it, you know.

Q. And were their officers interested in it?—A. Yes.

Q. And it was poor stuff?—A. Well, I should say so.

Q. And no other company was using any such stuff, was it?—A. No other company would dare use it.

Q. Now, that is not a very good test of what an independent oil company could do, is it?—A. I should hope not.

Q. You don't think it is, do you?—A. No; I don't think so.

Q. Do you know anything about what price the railroads pay to-day, or have during the last ten years?—A. All I know is, that there has been no change in the price.

Q. You think all roads got their oil at the same price?—A. No; I think they have all got to make this mileage to get the same price.

Q. There has been no change, you mean, in the invoice price?—A. So I understand.

Q. Do you know whether there have been changes in the guaranties?—A. I do not.

Q. You don't know what they are paying to-day, actually paying for their oil?—A. I haven't any idea.

Q. And you haven't known for ten years?—A. No.

Q. During that ten years there has been a very great improvement in lubricating cars, hasn't there?—A. Must have been.

Q. And in all other branches of the service, too?—A. Yes, sir.

6805 F. N. HIBBITS, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination, by Mr. ROSENTHAL:

Q. Your full name, please?—A. F. N. Hibbits.

Q. Where do you live?—A. In Bethlehem, Pa.

Q. What is your occupation?—A. Superintendent of motive power of the Lehigh Valley Railroad.

Q. As superintendent of motive power, in a general way what are your duties?—A. To look after the repairs, maintenance and care of the equipment, locomotives and cars.

Q. Do you come in contact with the matter of lubrication, in that position?—A. In a general way, yes, sir.

Q. You are familiar with that subject?—A. Yes, sir, in a general way.

Q. How long have you been in the railway business?—A. About twenty years; twenty-one years, I think, actually.

Q. And with what different roads have you been connected?—A. I was first with what is now part of the C., C., C. & St. L. Railroad, then with the Erie, then with the Union Pacific, then with the Southern Railroad.

Q. In what capacities with those different roads?—A. On the C., C., C. & St. L. I was in the shop, as an apprentice, and then
6806 afterwards as draughtsman. Then I came to the Erie as engineer of tests, then mechanical engineer, master mechanic, train master, division superintendent; and from there I went to the Union Pacific as their mechanical engineer and assistant superintendent of motive power; and from the Union Pacific to the Southern Railway as their general mechanical engineer; and from there to the New York, New Haven & Hartford as mechanical superintendent; and from there to the Lehigh Valley as superintendent of motive power.

Q. Will you name the first road with which you were connected, where Galena oils were used.—A. To the best of my knowledge it was the Erie Railroad.

Q. And about what year was that?—A. I went to the Erie in 1891, but I can't say positively whether the Galena oil was used on the road at that time or not; I did not occupy a position where I would know it.

Q. How long were you with the Erie road?—A. Until 1901.

Q. You occupied what position when you left?—A. Division superintendent.

Q. Do you know whether Galena oils were then used?—A. Yes, sir.

Q. So that your first intimate contact with the matter of lubrication was with a road that was using Galena oil?—A. Yes, sir.

Q. You may state whether or not, when you first came in contact with that matter, on the Erie road, the road was being
6807 satisfactorily lubricated by the Galena company?—A. I couldn't answer that question. I was not in a position to know.

Q. As superintendent of motive power on the Lehigh Valley you have to do with the general supervision, I suppose, of the matter of lubrication?—A. Yes, sir.

Q. Does the Lehigh Valley keep statistical records showing the number of hot boxes, for example?—A. Yes, sir.

Q. How are those records kept?—A. They are made up in the division offices, and forwarded to my office, and compiled there, or combined.

Q. So the ultimate record is lodged in your office?—A. Yes, sir.

Q. How many miles are there to the Lehigh Valley system?—A. About two thousand miles, I believe.

Q. And, in a general way, it runs from where to where?—A. From Jersey City to Buffalo.

Q. Across the State of Pennsylvania and into New York?—A. Yes, sir.

Q. Have you prepared a table showing the number of hot boxes, extending over the past ten years, on the Lehigh Valley?—A. Not over the entire period, no, sir.

Q. Have you prepared a table instituting a comparison between the year 1896 and the year 1907?—A. Yes, sir.

Q. Have you that with you?—A. Yes, sir. [Witness produces a paper.]

6808 Q. Do your records show when Galena oil was first used on the Lehigh Valley?—A. The records in my office, yes, sir.

Q. Do you now recall what that date is?—A. May 1, 1897, the beginning of the contract, to the best of my recollection.

Q. Have you prepared a table showing the number of hot boxes for the year preceding May 1, 1897?—A. Yes, sir.

Q. You have that table with you?—A. Yes, sir.

Q. Will you produce it, please, and have the stenographer mark it "Defendants' Exhibit 23."

(The paper was produced and marked.)

Q. I show you defendants' Exhibit 23. Will you please explain that?—A. From our office records we obtained the number of hot boxes during the two periods in question, on freight cars, hot boxes on passenger cars, and hot boxes and bearings on locomotives. Then from our records we ascertained the revenue freight tons hauled one mile——

Q. Per hot box?—A. Well, that was the total revenue freight tons hauled one mile; then from that we ascertained the revenue freight tons hauled one mile per hot box.

Q. Now, take the first item there. For the year prior to May 1, 1897, how many hot boxes does your record show, on freight cars, of the Lehigh Valley?—A. 43,288.

Q. Now, after a ten years' experience in the use of Galena oils, what do your records show as to the number of hot boxes for the year ended June 30, 1907?—A. On freight cars, 12,339.

6809 Q. That is, the number of hot boxes in 1907 was about thirty per cent of what they were in 1896?—A. Yes, sir; over thirty per cent less.

Q. What do you mean by the item "Revenue freight tons hauled one mile?"—A. That means the paying freight hauled one mile—each ton hauled one mile; it does not include the light weight of a car.

Q. The figure 2,889,539,293—does that represent the number of revenue freight tons hauled one mile?—A. Yes, sir.

Q. And that was the number of freight tons hauled one mile in the year 1896, for the fiscal year ending November 30, 1896?—A. Yes, sir.

Q. And for the fiscal year ended June 30, 1907, how many revenue freight tons did you haul one mile?—A. 4,770,099,930.

Q. So that you hauled almost twice as much freight in the year 1907 as you did in 1896, and, notwithstanding that, had but about thirty per cent of the number of freight hot boxes?—A. That is correct.

Q. I notice that your third item is "Revenue freight tons hauled one mile per hot box." Will you please explain that?—A. Dividing the revenue freight tons hauled one mile by the number of hot boxes on freight cars would give you the revenue freight tons hauled one mile per hot box.

Q. That is to say, you divide your 2,889,000,000 by 43,000?—A. Yes, sir.

Q. And it gives you the figures 66,752?—A. Yes, sir.

Q. And what that means is that for every hot box in the

6810 year 1896 there were 66,752 tons of freight hauled one mile?—A. Yes, sir.

Q. And in the year 1907, after a ten years' use of Galena oil, for every hot box there were 386,587 tons hauled one mile?—A. Revenue tons hauled one mile; yes.

Q. I suppose you mean by "revenue freight tons" freight which pays revenue?—A. Yes, sir.

Q. And that distinguishes your freight from which you secure a revenue from the freight that you haul for the railroad company itself?—A. Yes, sir.

Q. That is what that means?—A. Yes, sir.

Q. Your next item is "Hot boxes on passenger cars for the year prior to 1897." That means, does it, that in that year there were 678 hot boxes on your passenger cars?—A. Yes, sir.

Q. And for the year ending June 30, 1907, after a ten years' use of Galena signal oil, there were 131 hot boxes on your passenger cars; is that right?—A. Yes, sir.

6811 Q. The next item shows the passenger car mileage. That means, I suppose, does it not, that in the year 1896 there were 21,152,956 passenger miles?—A. Passenger-car miles.

Q. Passenger-car miles?—A. Yes, sir.

Q. Now, what does that mean?—A. That means it is equivalent to one passenger car hauled 21 miles.

Q. 21 million miles?—A. Yes, that many miles.

Q. And then you show the corresponding mileage in 1907 as being 23 odd millions?—A. Yes, sir.

Q. Now please explain the next item.—A. Passenger-car miles per hot box is obtained by dividing the passenger-car mileage by hot boxes on passenger cars.

Q. And with what result?—A. With the result for the fiscal year ending November 30, 1896, we made 31,199 miles—passenger-car miles—per hot box, and for the fiscal year 1907 we made 181,902 passenger-car miles per hot box.

Q. So that after a ten years' use of Galena oils you made six times as many passenger miles to each hot box as you theretofore had?—A. Yes, sir.

Q. Now, please explain the next item?—A. "Hot boxes and bearings on locomotives." That includes all hot pins, as well as the journal bearings, and in the year ending November 30, 1896, we had 3,111 such hot bearings, and the fiscal year ending June 30, 1907, we had 314.

Q. That is, after ten years' use of Galena oils you had just one-tenth as many locomotive hot boxes and bearings as you

6812 theretofore had?—A. Yes, sir.

Q. Explain the next item, please.—A. "Locomotive mileage" means the number of miles run by the Lehigh Valley locomotives.

Q. And that is shown in that item as being 24 and 22 million odd, respectively?—A. Respectively, yes, sir.

Q. Now, the last item on that table means what?—A. "Locomotive mileage per hot box or bearing" is obtained by dividing the locomotive mileage by the hot boxes and bearings on locomotives during the period.

Q. With what result?—A. Which results in locomotive mileage per hot box or bearing of 7,789 for the year 1896 as against the mileage of 71,306 in 1907.

Q. So that in the year 1896 you had one locomotive hot box or hot bearing for every 7,789 locomotive miles?—A. Yes, sir.

Q. But in the year 1907 you only had one hot box or hot bearing for every 71,306 miles?—A. Yes, sir.

Q. That is what that means, is it?—A. Yes, sir.

Mr. ROSENTHAL. I offer Defendants' Exhibit 23 in evidence.

Q. Now, Mr. Hibbits, what relation is there between this tremendous reduction in the number of hot boxes and hot bearings shown

by this table and a decrease, if any, in the cost of repairs?—A. As the number of hot boxes or bearings decrease, there must be a decrease in the cost of repairs, due to less material being used and less labor.

6813 Q. And a hot box means a loss of much time, does it not?—A. Yes, sir; the hot boxes on all engines and cars means a delay to traffic which is demoralizing to the schedule, and hot boxes are also liable to lead to broken journals, which may result in accidents causing loss of property and loss of life.

Q. So a decrease in hot boxes of 80 or 90 per cent for a period of ten years in connection with the operation of a railroad means a tremendous saving in every direction, does it not?—A. Yes, sir.

Q. Do you know the value of a brass?—A. That depends on the size. They run about from $1 to $2, I should judge. That is, car journal bearing.

Q. Yes, sir.—A. Of course, a driving-box brass would probably cost $10 to $15, or even more.

Mr. KELLOGG. That is, on an engine, you mean?

WITNESS. Yes; on an engine.

Q. And these brasses when improperly lubricated are, of course, much damaged, are they not?—A. They are damaged so that it is necessary to renew them in very many cases.

Q. And then they go to the scrap pile?—A. To the scrap pile—scrap.

Q. So that improved lubrication means a direct and immediate economy in connection with the number of brasses used?—A. Yes, sir.

Q. Now, what relation is there between the use of waste and

6814 lubrication?—A. The waste used in packing the boxes is saturated with the oil, and the more hot boxes you have the more packing you naturally use, on account of the packing being burned out.

Q. Does the Lehigh Valley road keep a record of the cost of its waste?—A. Yes, sir.

Q. And have you prepared a table instituting a comparison between the year ending November 30, 1896, and the year ended June 30, 1907?—A. Yes, sir.

Q. Will you produce that table, please?

(Witness produces paper, and the same is marked "Defendants' Exhibit 24.")

Q. Is that the table that I have just had marked "Exhibit 24," the table that you just spoke of?—A. Yes, sir; this is the table.

Q. Now, will you please explain that to us?—A. We have made a comparison of the cost of waste during the year ending November 30, 1896, and the year ending June 30, 1907, on freight cars, locomotives, and passenger cars.

Q. What was the cost of waste on freight cars per 1,000 tons hauled 1 mile in the year 1896?—A. .0054 cent.

Q. And in the year 1907?—A. .0032.

Q. About three-fifths of what it was in 1896?—A. Yes, sir.

Q. Now, on locomotives per 1,000 tons hauled 1 mile?—A. .00112, as compared with .00071 cent for the year ended June 30, 1907.

Q. Saving, in round numbers, how much?—A. About 4 mills per thousand tons.

6815 Q. Now, on passenger cars per 1,000 passenger-car miles?—A. For the year ending November 30, 1896, the cost was .0950, as compared with .0721 for the year ending June 30, 1907.

Q. Does that represent a substantial saving on the cost of waste?—A. Yes, sir.

Q. Comparing those two years in the way that you have?—A. Yes, sir.

Q. And to what, if you please, do you attribute that saving in the cost of waste?—A. It is directly due to the great reduction in the number of hot boxes.

Q. And to what do you attribute the reduction in the number of hot boxes?—A. To the care and attention given to the packing of boxes and the use of the Galena oil.

Q. Is there any relation between the decrease in the number of hot boxes and the reduction in the quantity of coal, if any, used by a railroad?—A. There is, naturally, a decrease in the consumption of fuel on a locomotive.

Q. Just explain how that would be brought about?—A. By reason of the fact that there are less delays to traffic on the road, the trains getting over the road better, consume less time; and there is a saving also in the coal used, necessary to switch out these cars.

Q. That is, during the time that a train is stalled by reason of a hot box, the coal keeps right on burning?—A. Yes, sir.

6816 Q. Are you familiar with the change, if any, in the methods of packing boxes that has been introduced in recent years?—A. Yes, sir.

Q. Will you please explain that?—A. In former years dry packing was dipped in the oil and placed in the box without any attention as to the proper manner of placing the packing in the box. In more recent years they have a regular method of packing boxes, which consists, first, of rolling up a piece of saturated packing; then the packing is saturated 48 hours before it is used. The piece of packing which is rolled up is placed at the back end of the journal, next to what we call the dust guard, so as to prevent the loss of oil at the back end of the journal and to prevent the dust and dirt from blowing into the box. The balance of the box then is packed with saturated waste, keeping it below the middle of the journal, and afterwards, and last, there is a piece of saturated packing placed at the end of the journal.

Q. What is the object of keeping that below the center of the journal?—A. To prevent the ends of the packing from catching and pulling up between the journal and the bearing, which would cause a hot box.

Q. About when were those methods of packing introduced, do you remember?—A. Why, I have known them to be used for at least five or six years; they may have been before that.

Q. And who introduced it?—A. The Galena Oil experts are the first men that I knew that ever used it.

Q. Did they introduce that method of packing on the roads which you were connected with?—A. Yes, sir.

6817 Q. And do you regard that method of packing as a marked improvement on the old method of packing?—A. Yes, sir.

Q. I show you a paper marked "Defendants' Exhibit 25." Will you tell us, generally, what that is and when you first saw it, or a copy of it?—A. To the best of my recollection, I saw these three or four years ago.

Q. On what road?—A. On the New Haven road.

Q. By whom was this gotten up?—A. It was given to us by the Galena expert.

Q. By the Galena expert on that road?—A. Yes, sir.

Q. You first saw it, then, on the New Haven road three or four years ago?—A. Yes, sir.

Q. Handed to you by the Galena expert. And what use did you make of it?—A. These were placed in the hands of the men who had the work of packing the boxes on locomotives, in the roundhouses and in the yards, by the car men.

Q. Were copies promiscuously distributed in that way along the line of your road?—A. Yes, sir.

Q. Will you explain figure 4, as shown on Exhibit 25, as shown in the illustration?—A. It shows a car journal box and journal being lubricated with what we call free oil; that is, an oil can filled with oil has a spout inserted in the box and free oil poured into the box, which is the old method of packing.

Q. What was the objection to that?—A. In the first place, it results in a waste of oil, and, in the second place, the oil does not reach the back end of the journal.

6818 Q. Why not?—A. Because the packing at the back end of the journal, as a rule, becomes glazed, and the heating of the box frequently—most often—starts at that point. Consequently, the oil can not feed up through the glazed surface of the packing and reach the back end of the journal.

Q. What does figure 5 in that illustrated diagram mean?—A. Figure 5 shows the journal box with a packing hook inserted. You will notice at the back end of the journal——

Q. That is, the packing hook is the hook which the man that packs the box has as he goes along from box to box?—A. Yes, sir.

Q. And stirs up the waste?—A. Yes, sir.

Q. Go right ahead now and explain that.—A. At the back end of the journal the waste or packing does not touch, resulting, of course, in no lubrication reaching the journal. The packing hook inserted shows the method of forcing the packing back to the rear end of the journal so that it will be lubricated.

Q. And that resulted in what, under that condition of packing?—A. When the packing is pushed up against the journal at the back end it will lubricate it and prevent it running hot again.

Q. Explain the significance of the diagram under figure 3.—A. The diagram under figure 3 illustrates the proper method of packing a car journal box. You will note at the back end a roll of packing that has been pressed into place next to the dust guard. Then the packing is loosely pushed into the box around the journal up to
6819 almost the center line. Then at the front there is the separate piece of packing that I referred to a moment ago.

Q. Do you know whether, prior to the Galena Company getting out this illustrated circular of instruction, their experts for many years theretofore had been engaged in teaching the railroad men just what is here illustrated?—A. I believe they were.

Q. How does that can shown in figure 3 differ from the can shown in figure 4? Will you explain that? That is, how does the new can differ from the old can?—A. The spout is located differently so as to facilitate getting the oil to the back end of the journal. Of course, the old can has the spout broken off.

Q. By whom was that introduced?—A. The Galena experts.

Q. And these various hooks that are shown on the sides of the illustration, what are they?—A. Those are what we call packing tools.

Q. Used for what?—A. Used for the purpose of placing the packing properly in the journal boxes; also for removing the old packing.

Q. Are they the standard packing tools?—A. Yes, sir; they are considered the best type of a tool to use for the purpose.

Q. And by whom were they introduced?—A. The Galena oil experts.

Mr. ROSENTHAL. I offer defendants' Exhibit 25 in evidence.

Q. Are you familiar, Mr. Hibbits, with the expert service of the Galena Company?—A. Yes, sir.

6820 Q. What do you say as to the benefit, if any, that has accrued to the railroad companies of the country where such service has been in use, by reason thereof?—A. The service of the Galena oil experts has been very great to the railroads in reducing the number of hot boxes and the reduction in the cost of lubrication by reason of the improved methods introduced by them.

Q. Has the work of these experts reduced the quantity of oil used for lubrication by the railroads?—A. Yes, sir.

Q. In what way?—A. By the improved method of handling the oil and packing the boxes and the use of the oil on locomotives.

Q. What do these experts actually do in that regard, Mr. Hibbits; do you know?—A. They travel over the road and visit the shops, roundhouses, and car-inspection points, and instruct the men how to care for the boxes, lubricate their engines and cars, and also instruct the trainmen in the proper method of packing a box when a hot box occurs in a train on the road away from a car yard.

Q. And how many years, to your knowledge, has the Galena been doing that kind of work? A great many years?—A. The first, to my knowledge, was along about the early nineties.

Q. Can you tell us how much authority, if any, is given the Galena experts in their relations with the railroad employees?—A. We give them authority to visit the yards and see the men and instruct
6821 the men how to perform their duty in regard to packing, lubricating cars, and the men understand that they must obey their instructions.

Q. What effect would you, as a railroad man, say the more economical use of lubricants would have upon the service so far as the more economical use of other supplies is concerned?—A. We believe that the economical use of oil and waste results in a more economical use of other supplies which these men handle, by reason of the fact that we all follow up these details more closely.

Q. Have you prepared a statement showing the reduction in cost of lubrication on the Lehigh Valley road during the last decade, comparing the year 1896 with the year 1907?—A. Yes, sir.

Q. Will you produce that statement, please?

(Witness produces paper, which is marked "Defendants' Exhibit 26.")

Q. I now show you defendants' Exhibit 26, which purports to be a statement showing the reduction in the cost of lubrication on the Lehigh Valley road, comparing the year 1896 with the year 1907. Was that prepared under your direction and supervision from the records of that company?—A. Yes, sir.

Q. Is it correct?—A. Yes, sir.

Mr. ROSENTHAL. I offer defendants' Exhibit 26 in evidence.

Q. Now, you have already testified, as I understand, the records of the company show, the fiscal year ending November 30, 1896,
6822 that Galena oils were not used by the Lehigh Valley?—A. Yes, sir.

Mr. KELLOGG. No; under this contract he said.

Mr. CRAWFORD. He testified they were first used May 1, 1897.

Mr. KELLOGG. Under a contract.

Mr. ROSENTHAL. He also knows what the records show. We will follow that up by showing they were not used before that time at all. Their initial use was when the contract was first made.

Q. The very first item on defendants' Exhibit 26 is "Revenue freight tons hauled one mile." So that the figure 2,889,539,293 means tons of revenue freight hauled one mile in 1896?—A. Yes, sir.

Q. And the corresponding figure in the column under the head "Fiscal year ended June 30, 1907," shows the increase in revenue-freight tons for that year as compared with 1896?—A. Shows what, do you say?

Q. The increase.—A. No; it shows the revenue-freight tons hauled during that period.

Q. Yes, sir. And comparing the two you get the increase?—A. Yes, sir.

Q. Now, what was the total cost of lubricating the freight cars of the Lehigh Valley for the year ended November 30, 1896?—A. $20,676.47.

Q. Notwithstanding the fact that you hauled almost twice as much freight in the year 1907 as compared with the year 1896, what
6823 was the total cost of freight lubrication for the year 1907?—A. $20,985.01.

Q. What was the cost of lubricating your freight cars per 1,000 tons hauled one mile in the year 1896?—A. .00715.

Q. And what was it in 1907?—A. .0044.

Q. A little more than one-half in 1907 than what it was in 1896?—A. Yes, sir.

Q. And you have the same relative figures prepared just below that, in this same statement, for passenger cars, have you?—A. It is a car mile instead of a ton mile.

Q. What does that mean? Under the head of "Passenger cars" I find the statement "Passenger car mileage" for 1896, 21,152,956. What do you mean by that?—A. That means equivalent to one car hauled that many miles.

Q. And under the column headed "Fiscal year ended June 30, 1907," it means that a passenger car was hauled 23 million miles?—A. Yes, sir.

Q. Now, what was the total cost of lubricating the passenger cars in the year 1896?—A. $5,654.80.

Q. And the total cost in the year 1907?—A. $6,496.52.

Q. And the cost of lubricating passenger cars per one thousand miles, those two years compared?—A. Respectively, .2664 and .2726.

Q. Now, has the passenger car equipment increased any in weight during those ten years?—A. Yes, sir.

Q. Materially?—A. Yes.

Q. Using heavier passenger coaches now than ten years ago?—A. Yes, sir.

6824 Q. And how about the number of trucks under passenger cars now as compared with ten years ago?—A. The number of trucks are the same, but the number of wheels per truck has increased now over what it was ten years ago.

Q. From what to what?—A. Formerly the great majority of cars had four wheels per truck; now they have six wheels per truck on all of our modern equipment.

Q. That is to say, ten years ago most passenger coaches had eight wheels to each coach, and now most passenger coaches have twelve wheels to each coach?—A. Yes, sir; on the Lehigh Valley Railroad.

Q. And that, of course, means twelve journals to be lubricated under each passenger coach now as compared with eight journals that had to be lubricated ten years ago?—A. Yes, sir.

Q. Assuming that the size of the journal bearings remain the same, that would mean an increase of 50 per cent in the lubricating space now as compared with ten years ago, would it not?—A. Yes, sir.

Q. Now, this table on passenger cars, which you have prepared, marked "Defendants' Exhibit 26," ignores this difference in the weight that I have just developed, does it not?—A. Yes, sir.

Q. And treats a big car now, when speaking of car mileage, the same as you treated a little car ten years ago in speaking of car mileage?—A. Yes, sir.

6825 Q. Notwithstanding the greater amount of lubricating surface now as compared with then?—A. Yes, sir.

Q. Now, explain this same Exhibit 26 in so far as it relates to locomotives.—A. We have taken the number of locomotives in service in the two periods and ascertained the total weight of these engines, taken from our records.

Q. How many locomotives were there in service on the Lehigh Valley in 1896?—A. 754.

Q. And in 1907?—A. 857.

Q. What was the total weight of the 754 locomotives in 1896?—A. 60,865 tons.

Q. And the total weight of the 857 locomotives in 1907?—A. 102,801 tons.

Q. What was the average weight of each locomotive in 1896 and 1907, respectively?—A. 80.72 tons in 1896, and 120 tons in 1907.

Q. An increase of about 50 per cent—just 50 per cent?—A. No; it is an increase of about 60 per cent.

Q. The increase in the average weight is just 50 per cent, isn't it? 40 tons increase on an old 80-ton engine?—A. Yes, sir.

Q. What was the total cost of locomotive lubrication in 1896?—A. $36,766.84.

Q. Now, notwithstanding the increase in the number of engines, from 754 to 857, and in the tonnage from 60,000 tons to 102,000

6826 tons, what was the total cost of locomotive lubrication in 1907?—A. $50,646.21.

Q. What was the cost of lubrication of locomotives per ton weight in 1896?—A. .6046 cents.

Q. And how much was it in 1907?—A. .4926.

Q. That is cents?—Yes, sir.

Q. That shows a decrease in the cost of lubrication per ton weight of locomotives of how much?—A. 18½ per cent.

Q. The total weight of the locomotives increased what per cent?—A. 69 per cent.

Q. And although the weight of the locomotives increased 69 per cent, how much did the cost of lubrication of the locomotives increase?—A. It increased but 37 per cent.

(A recess was here taken until 2 o'clock p. m., at which time the direct examination was resumed.)

By Mr. ROSENTHAL:

Q. Mr. Hibbits, in your opinion, have the methods of economy in the use of oil, as introduced by the Galena experts, had any effect in the economical use of other supplies?—A. Yes, sir.

Q. Can you state in what respect? Give us some instances.—A. It results in a saving of brasses, journal bearings, and in packing used for the packing of boxes, and also tends to make the men who

have the handling of oil, the care of it, and using it, more economical in the use of other supplies.

Q. What do you say as to whether the present high rate of
6827 speed can be maintained without the use of the Galena oils and the use of the Galena system of lubrication?—A. In my opinion, the present high rate of speed could only be maintained by the use of the Galena oil or some other oil of equal quality and methods as efficient as the Galena Oil expert methods.

Q. Is there any relation between lubrication and weight of the locomotive?—A. Yes, sir.

Q. And the capacity of the freight cars?—A. Yes, sir.

Q. State what that is.—A. The greater the weight of the locomotive, the greater the quantity of lubricant necessary to lubricate it, and the greater capacity of the car necessitates a greater weight, first, a larger car and a greater weight of car, which necessarily means more lubrication.

Q. That is, added weight means an increase of lubrication?—A. Yes, sir.

Q. And an increase in lubricating surface, such as an increase in the size of the journal-bearings——A. Yes, sir.

Q. Means an increase in lubrication?—A. Yes, sir.

Q. And has there been such an increase in weight and an increase in size of journal bearings during the past ten years?—A. Yes, sir, there has been.

Q. On the Lehigh Valley road?—A. Yes, sir.

Q. Have you produced a statement showing the difference in the weight of the locomotive and of the tonnage capacity of the
6828 freight cars on the Lehigh road between the years 1896 and 1907?—A. Yes, sir.

Q. Will you produce that statement, please?

(Witness produces paper, which is marked "Defendants' Exhibit 27.")

Q. I show you defendants' Exhibit 27. Please state what that statement is.—A. It is a statement showing the percentage of increase in weight of locomotives and weight and capacity of freight cars in the past eleven years on the Lehigh Valley Railroad.

Q. Now, take, first, locomotives. What was the average weight of locomotives or engines in the year 1896?—A. 161,446 pounds.

Q. And in the year 1907?—A. 239,909 pounds.

Q. And what was the percentage of increase?—A. The percentage of increase in weight was 48 per cent.

Q. And the total tons capacity of freight cars for those respective years and the percentage of increase were what?—A. 897,160 pounds.

Q. In 1896?—A. That was in 1896, yes, and 1,357,740.5 pounds in 1907, and the percentage of increase in ton capacity is 73 per cent.

Q. That is, an increase of from 18.9 tons to 32.8 tons?—A. Yes, sir.

Q. The average tonnage capacity of each car. Now explain the next item, please.—A. Total light weight of freight cars.

Q. What does that mean?—A. That is obtained by adding together the light weight of all freight cars on the road.

6829 Q. What do you mean by "light weight?"—A. That is the weight of the car, empty. In 1896 the total light weight was 985,618,800 pounds, and in 1907 it was 1,255,734,300 pounds.

Q. Go right ahead and explain those other items.—A. The average light weight per car in 1896 was 20,628 pounds, and in 1907 it was 30,309 pounds, or an increase of 9,681 pounds, or 47 per cent.

Mr. ROSENTHAL. I offer defendants' "Exhibit 27" in evidence.

Q. These figures were prepared from the records of the Lehigh Valley road under your direction and supervision, and are correct?—A. Yes, sir.

Q. Mr. Hibbits, on defendants' Exhibit 26 I notice that the cost of lubrication has increased 37 per cent. That means on locomotives, does it not?—A. That means locomotives, yes.

Q. Does that represent the total increase in cost of lubricating locomotives, comparing the year 1907 with 1896?—A. Yes, sir.

Q. That is 37 per cent?—A. Yes, sir.

Q. Now, would it be true that the average percentage of cost for lubricating a locomotive was 37 per cent increase, comparing the same period? That is, if your total cost of lubrication increased 37 per cent from 1896 to 1907—the total cost for lubricating engines—would that 37 per cent also represent the average percentage of increase for the cost of lubricating a given engine?—A. No.

Q. Why not?—A. Because an engine in service in 1896 and still in service in 1907—the same weight and the same engine—

6830 wouldn't take any more lubrication.

Q. That is, you couldn't get an average cost of lubricating a given engine which would stand for anything, in other words?—A. No, sir.

Q. I see. In your years of contact with the Galena oils, what do you say as to the sufficiency of such oils to properly lubricate the railroad equipment of the various roads that you have been connected with and the quality of the oils used?—A. The Galena oils are satisfactory, have been satisfactory on the roads with which I have been connected during the time that I have occupied an official position which would bring me in contact with that subject, and they are of sufficiently good quality to lubricate the cars and engines satisfactorily.

Q. What do you say as to whether or not the system of expert inspection as carried on by the Galena Company could be as well carried on by the railroad company itself? Have you an opinion upon that?—A. I do not believe that a railroad company would get as good results from their own experts as from the Galena Oil experts.

Q. Tell us why not.—A. Because the Galena Oil experts are scattered all over the country and they meet at different times and exchange experiences and views, and the Lehigh Valley Railroad gets the benefit of the experience of all these men in different parts of the country. If the railroad employed its own expert, he would be necessarily confined to his own railroad and would not be in a position to

gain knowledge from the experience of men in other parts of
6831 the country. And, furthermore, the time of the Galena men is devoted exclusively to the question of lubrication, and they study it; that is their business. A man employed by a railroad usually devotes some of his time to other work and would not confine himself entirely to the one question.

Q. Is there any executive officer now to whose control the matter of lubrication is largely confined? What railroad official, by name, if there is any, has general executive charge of the matter of lubrication?—A. The actual lubrication on the railroad?

Q. Yes, sir.—A. Yes, sir; the superintendent of motive power.

Cross-examination by Mr. KELLOGG:

Q. Mr. Hibbits, your exhibits have shown the results of lubrication on the Lehigh Valley road in 1896 or 1897—which was it?—A. It was prior to 1896.

Q. 1896 and 1907. Is it not a fact that prior to 1896 the Lehigh Valley manufactured its own lubricants?—A. According to the records, they did.

Q. You don't know anything about whether they had an efficient system of manufacture or not, do you?—A. I don't know.

Q. Or the composition of the oils?—A. No, sir.

Q. Or whether they manufactured as good oil as the Standard Company and independent companies? You know nothing about it?—A. Only so far as the results obtained show.

Q. A railroad company is not generally a manufacturer, is it?—A. No, sir.

6832 Q. And you don't pretend to say that the Lehigh Valley would make as good lubricating oil as other independent companies?—A. I am not in a position to say.

Q. You don't know anything about it?—A. No, sir.

Q. So, whatever results the Lehigh Valley may have had on its line of road prior to 1897 were not the results resulting from purchasing their oil from other companies than the Standard?—A. I believe not during the time they manufactured it.

Q. Do you know how many years they manufactured it?—A. I do not.

Q. You don't know anything about it?—A. No, sir.

Q. Now, the Galena-Signal Oil Company, and its predecessors, the Galena Company and the Galena-Signal Company, have been selling oil to railroads for more than 25 years, haven't they?—A. I don't know.

Q. You don't know that?—A. No, sir.

Q. Well, you know in a general way from the history of it, don't you, that they have?—A. The first knowledge that I had of the Galena oils was, as I said, along about in the early nineties; before that I didn't know.

Q. 16 or 17 years, is that it?—A. Yes, sir.

Q. And haven't you heard they were making and selling to railroads lubricants years before that?—A. I have heard it stated here.

Q. Now, in other branches of the service of railroads there has been a great improvement in ten, twelve or fifteen years, hasn't there?—A. In practically all branches, I believe.

6833 Q. And those improvements have come from the study of the railroad men and from experiments of railroad men in the various branches of its management?—A. Not altogether, I don't think.

Q. Well, to a large extent?—A. Yes, sir.

Q. So that the system of lubricating is not the only improvement that railroads have taken advantage of?—A. No, sir.

Q. There have been improvements in nearly all branches of the service?—A. Yes.

Q. By which the movement of a ton of freight has been cheapened?—A. Yes, sir.

Q. And the railroads have been able to do business at very much less rates than they used to get years ago?—A. Yes, sir.

Q. Now, in your department you are constantly studying new methods, new machinery, the application of new methods, in order to improve your service, aren't you?—A. Yes, sir.

Q. And during your time there has been great improvement?—A. Yes, sir.

Q. So you don't pretend to say that this improvement in lubrication would not have come unless the Galena-Signal had taken hold of it?—A. How is that?

Q. You do not pretend to say that this improvement in lubrication would not have come if the Galena-Signal Oil Company had not taken hold of it?—A. I don't believe it would have had the same improvement.

6834 Q. You don't think it would have the same improvement?—A. No, sir.

Q. You think there would have been a great improvement?—A. There would have been an improvement; yes, sir.

Q. In the early days, in the lubricating of cars especially, there was very great waste, wasn't there?—A. Yes, sir.

Q. And much of that waste was perfectly obvious, wasn't it, to any intelligent superintendent?—A. Yes; when it was pointed out to him.

Q. Now, if you will look at Exhibit 25. This picture number 4 indicates a can of oil inverted, the oil being poured partly into the box and partly on the ground, doesn't it?—A. Yes, sir.

Q. Now, it didn't require a great deal of ability to discover that pouring oil on the ground was not good lubrication of a car, did it?—A. That is true.

Q. This is very much like the pictures we see of a quack doctor, "before and after taking," in that respect, isn't it?—A. Yes.

Q. Now, that can which the Galena-Signal Oil Company picture there appears to be pouring oil into the box and pouring it on the ground. There was a good deal of waste in allowing the men what you call free oil in the early days, wasn't there?—A. Yes, sir.

Q. The system in those days of lubricating cars, the men had all the free oil they wanted; that is, they took the cans
6835 and dumped it into the boxes, didn't they?—A. Practically so, I understand.

Q. That may be a little strong. They had a large amount of oil to dump into the boxes?—A. Yes, sir.

Q. Now, the present system, which experience has shown is better, is to soak the waste for a long time in oil, then the oil is allowed to drip out of it to a considerable extent, isn't it?—A. Yes, sir.

Q. So that the surplus, the unnecessary oil, is taken out of the waste before it is used?—A. Yes, sir.

Q. Isn't that true?—A. Yes, sir.

Q. Now, another thing—you use better waste than you used to, don't you?—A. Well, I don't know what they used prior to my time on the road.

Q. Well, years ago they used to use cotton waste mostly, didn't they?—A. I believe so; yes, sir.

Q. And that is not as good, is it?—A. We don't consider it as good as wool waste.

Q. Wool waste doesn't pack down as hard?—A. No, sir.

Q. You have better dust guards than you used to have, don't you?—A. No, the dust guard is practically the same on a great many cars. It is a wooden dust guard, and a wooden dust guard was the first dust guard I ever saw, and it is practically in use to-day.

Q. Mr. McKenna has testified they were better than they were twenty or twenty-five years ago.—A. That is, of course, before my time. That might be.

6836 Q. Now, have there been other improvements in the oil boxes, in the cars, that have lessened the cost of lubrication?—A. In the journal boxes of freight cars they attempt to have a tighter lid. That is about the only one that I recall at the present time.

Q. That is an important item, isn't it?—A. Personally, I don't think so.

Q. You don't think so?—A. No, sir.

Q. You are speaking of during your experience?—A. Yes, sir.

Q. The present system of lubricating freight cars is, after that waste has soaked a while and then has been placed on a rack or something where the oil has dripped out of it, that oil is saved, isn't it?—A. Yes, sir.

Q. Then that waste is taken and used for lubricating the cars, isn't it?—A. Yes, sir.

Q. And you pour very little oil into the journal box; isn't that true?—A. Very little.

Q. The men are not given what is known as free oil?—A. That is true.

Q. That has lessened the waste of oil a good deal, hasn't it?—A. We believe it has, yes, sir.

Q. The men wasted oil in pouring it in and pouring it on the ground and pouring in too much?—A. Yes, sir.

Q. Isn't that true?—A. Yes, sir.

Q. That is a question largely of supervision and the manner
6837 of doing the lubricating, isnt it?—A. The improvement is due to the instructions that have been given to the men who actually perform the work.

Q. And that improved method of packing has largely been responsible for reducing the hot boxes?—A. We believe it has.

Q. While you use less oil, the lubrication is more effective?—A. Yes, it is placed where it is needed.

Q. Now, your men who do this work are under direct charge of what class of men?—A. The men who oil and pack these boxes are under the charge of the foreman in the shop or in the repair yard.

Q. And he is under the direction of what officer?—A. Probably of the general foreman.

Q. And the general foreman is under your direction, is he?—A. No.

Q. Who is over him?—A. The master mechanic.

Q. You have charge of the master mechanic?—A. On the Lehigh Valley road the master mechanic reports to the division superintendent.

Q. Now, the Galena-Signal experts, do you know how many there are on the Lehigh Valley road?—A. We have one man that spends part of his time on the Lehigh Valley Railroad.

Q. He doesn't go around generally and instruct the men who pour the oil? He gives his directions to the superintendents, the men who superintend that work generally?—A. No, he goes directly to the men.

6838 Q. Well, he can't visit all your men very often?—A. Well, he travels——

Q. If he spends half of his time on your road.—A. But he visits all the yards and the roundhouses as often as he can get around. I don't know just how often he does that. But he is on our road, I think, every two weeks.

Q. Now, in the lubrication of other machinery, marine engines and all other classes of machinery, there has been a great improvement in twenty years, hasn't there?—A. I can't answer that question.

Q. You don't know? Well, it stands to reason there has been, doesn't it?—A. I couldn't answer that question because I am not connected with it directly or indirectly, and never have been.

Q. Well, has the lubrication of your shop machinery improved?—A. I don't believe it has.

Q. There wasn't the chance for it, was there? There wasn't the waste there?—A. No, there wasn't the waste.

Q. Do you use the Galena oils in the shops, or the Vacuum oils?—A. I don't know. I can't answer that question. I never had occasion to look it up.

Q. Now, in other branches of the service, your men meet other railroad men, don't they?—A. Occasionally.

Q. Your general managers, your auditors, your master mechanics, meet other railroad men, don't they?—A. Yes, sir.

Q. And the statistics of railroads and their operation are open to them?—A. I presume they are. Personally, I couldn't answer that.

6839 Q. There are very few secrets in the operation of a railroad; isn't that true?—A. That is true.

Q. And their published statistics and records show pretty well the complete operations of the roads?—A. Yes, sir.

Q. And if you have men who superintend or have charge of lubrication, you are not certain that they would not get the information from other roads, too, are you?—A. The great trouble lies in the fact that the men who have supervision of the men who do the actual lubrication have so many other duties to perform that they have not the time to devote to that particular subject.

Q. There is no reason why the Lehigh Valley could not put on a man who is an expert and keep him at that business, is there?—A. Not if we could find a man and be able to secure him.

Q. Well, the Lehigh Valley can hire men if the Galena Oil Company can, can't they?—A. Well, if they would allow us to pay the wages and salary, and know where to get the man.

Q. Well, the Galena-Signal Company had to hire men, didn't they?—A. They hired men and then instructed them, I presume.

Q. They hired the men from railroads largely, didn't they?—A. I don't know where these men came from. I know personally two men, and they were railroad men.

Q. Now, when they started this system they had to hire men from railroads, didn't they?—A. These two particular men I have in mind were railroad men.

6840 Q. Have you ever known one of their men that they hired that they didn't get from a railroad?—A. I only know the two men personally, so that I know where they came from.

Q. Now, Mr. Hibbits, when you say that you could not keep up the high rate of speed without oils equally as good as the Galena, do you mean the high rate of speed of freight trains or passenger trains?—A. I mean both.

Q. Has the rate of speed of your freight trains increased in the last ten years?—A. Certain classes; not the average—certain classes.

Q. The average hasn't increased?—A. I couldn't say positively as to that.

Q. You wouldn't think they had?—A. I don't believe they have, because the trains are loaded down now.

Q. How much have the passenger trains of the Lehigh Valley increased in ten years?—A. That I couldn't answer.

Q. You mean, then, without getting an efficient lubrication you couldn't keep up a high rate of speed or any rate of speed at all with a locomotive; could you?—A. The higher the speed the better the lubricant must be.

Q. Now, you use the same grade of oil on all your engines, whether they are fast or whether they are slow, don't you?—A. Yes, sir.

Q. In determining the cost of lubricating a car for a given
6841 length of time, what is the principal factor?—A. What kind of a car do you have reference to now?

Q. A freight car.—A. Well, I never had occasion to figure that up, but the principal factor would be the mileage made by the cars——

Q. Yes, that is it exactly.—A. And the weight.

Q. That is right, the mileage made by the cars. That, of necessity, is the principal factor, isn't it?

Mr. CRAWFORD. And the weight, he said.

WITNESS. Yes; and the weight.

Q. Which is the more important factor?—A. Both go together. I don't see that you could very well separate them.

Q. If the car is standing still the weight wouldn't make a very great deal of difference, would it?—A. No; if the car was standing still it wouldn't need any lubrication.

Q. So that the most important factor is the miles the car has run?—A. The weight has a factor when the car is moving.

Q. I don't say it hasn't a factor, but the principal factor is the movement of the car, isn't it?

Mr. ROSENTHAL. It depends upon your point of view, I suppose.

Q. The most important factor?—A. No, sir; I don't think it is.

Q. For instance, if a car runs ten miles and weighs 20,000 pounds it will take more to lubricate it than if it ran 50 miles and
6842 weighed 10,000 pounds, would it?—A. I can't answer that, and I don't believe any other man can.

Q. Well, the most important, the principal factor is the miles the car runs, isn't it?—A. I believe, in my opinion—I will give you my opinion—that the weight is more important than the miles, because a car with excessive weight on the journal must be very well lubricated or you will be unable to run the car.

Q. But it doesn't cost anything to lubricate it while it is standing still, does it?—A. No.

Q. Now, why have you changed all of your contracts from a per ton miles basis to a simple mileage basis?—A. I don't know.

Q. Isn't every contract in the United States made with the railroads by the Galena-Signal Oil Company, based upon a mileage basis instead of a ton basis?—A. I don't know.

Q. Well, it is on your road, isn't it?—A. It is on the Lehigh Valley, yes, sir.

Q. And it is on every road you have been connected with?—A. It was on the New Haven, and the other roads I don't know.

Q. Didn't it change over, in 1900, on your road from a per ton mile basis to a mileage basis simply?—A. I don't know from my own knowledge, because I wasn't there. I have understood there was a change made.

Q. Who directed you to make up these exhibits that you have put in evidence?—A. They came to me from the assistant to the first vice-president.

6843 Q. From the assistant to the president, you mean?—A. The assistant to the first vice-president.

Q. To you. Who is the first vice-president?—A. Mr. Middleton is the first vice-president and Mr. Blendinger is the assistant to the first vice-president.

Q. The orders to make these statements, you mean, came to you?—A. Came to me from Mr. Blendinger.

Q. Now, who directed the form of these statements?—A. I worked up the form.

Q. Will you please take Exhibit 26. Did any of the Standard counsel or officers or agents talk with you about the form of this exhibit?—A. No, sir.

Q. Any officers or employees of the Galena-Signal Oil Company?—A. No, sir.

Q. Nobody?—A. No, sir.

Q. You got this up yourself?—A. I got up this form myself.

Q. Now, Mr. Hibbits, take the first item of your Exhibit 26. Why don't you show the mileage of the cars in that form? You say that is an important factor.

Mr. ROSENTHAL. Where do you mean, Mr. Kellogg?

Mr. KELLOGG. In the first item under "Freight cars" of Exhibit 26.

Mr. ROSENTHAL. Well, I submit the exhibit shows——

Mr. KELLOGG. Now just let the witness answer the question. You don't have to answer it.

Mr. ROSENTHAL. No; I submit the exhibit shows for itself what it is.

Mr. KELLOGG. That is not the question I asked him.

6844 WITNESS. What is the question, please?

(The last question was read to the witness.)

A. The revenue freight tons hauled one mile in 1896 we were obliged to obtain from our annual report, and that was the best figure with which we could compare; that is, the figure that we could compare in the two periods. We couldn't, for example, take the total freight-ton miles because we couldn't find the record.

Q. But you could take the total miles the freight car ran and show it?—A. I don't believe we could have found it in 1896.

Q. You could in 1897, couldn't you?—A. Well, no, in 1897 I don't think we could.

Q. You could in 1898?—A. I don't know just when it started.

Q. And you could in each year thereafter, couldn't you?—A. No, I don't know as to that.

Q. You don't know as to that?—A. No, sir.

Q. Don't your statements to the Galena-Signal Oil Company, on which they settle their contracts with you, show the miles run by the freight cars?—A. They do now.

Q. They did in 1898, didn't they?—A. I don't know; I never saw it.

Q. Now, isn't it a fact that in 1907 your locomotives, all of the locomotives on the Lehigh Valley road, ran only about one-tenth of one per cent more miles than they ran in 1898?—A. I don't know that.

Q. You don't know that?—A. No, sir.

6845 Q. Now, your contracts with the Galena-Signal Oil Company are settled upon a mileage basis alone, aren't they?—A. They are now, I admit.

Q. And the tonnage does not enter into the figures at all, does it?—A. Not now.

Q. And the tonnage and weight of cars and engines does not enter into calculation at all?—A. It is not in the contract, I believe.

Q. Nor in the settlements with the Galena-Signal Company?—A. No, sir.

Q. All your guaranties are based upon miles run, aren't they?—A. Yes, sir.

Q. And your settlements are made on that basis?—A. Yes, sir.

Q. And you have omitted that from your statements, haven't you?—A. Yes, sir.

Q. Yes, sir; that is what I thought. Why didn't you make it up on the basis on which you buy your oil, on the basis for which you contract for it, on the basis on which you settle with the Galena company for it?—A. As I explained before, in order to make a comparison we were obliged to take the figures in 1896, of which we had a record, and for that reason we took the revenue freight tons hauled one mile in 1896.

Q. In 1896 don't you know the mileage of your freight cars on your system?—A. I don't know; no.

Q. Well, the records of the railroad company show it, don't they?—A. I couldn't find it.

6846 Q. Did you try?—A. Yes, sir.

Q. How was it in 1898?—A. Oh, I don't know; we didn't look at that year.

Q. You didn't look for 1898?—A. No, sir.

Q. Nor 1899, nor any year down to the present time?—A. No; because we took the period prior to the time the Galena oil contract was first entered into.

Q. Now, you take the locomotive miles. Don't your records show the number of locomotive miles run?—A. Yes, sir.

Q. Why didn't you show the number of locomotive miles in this statement?—A. Because it is not a fair comparison owing to the great increase in weight, and the weight of the engine must be a factor.

Q. Yes; but you admit that a very important factor is the mileage.—A. Mileage is an important factor, and I said that, in my judgment, the weight was a more important factor.

Q. But the only thing you have shown here is weight.

Mr. ROSENTHAL. Oh, no, it isn't.

Mr. KELLOGG. For locomotives.

Mr. ROSENTHAL. Oh, no, it isn't.

Mr KELLOGG. Weight of engines.

Mr. ROSENTHAL. He has shown freight ton hauled one mile.

Mr. KELLOGG. Not of locomotives at all. He hasn't done anything of the kind. Have you, Mr. Hibbits?

WITNESS. No; but it wouldn't make any difference.

Q. So you have simply shown the weight of engines and the number of the engines, haven't you?—A. Yes, sir.

6847 Q. And in your statement it doesn't appear whether the engines are running or standing still, does it?—A. No, sir.

Q. Isn't it a fact that in 1897 or 1898 they ran those locomotives just as many miles, or substantially as many miles, as they did in 1907, although you had many more locomotives in 1907?—A. I don't know. We didn't look that up.

Q. You don't know that?—A. No, sir.

Q. Your records show it, don't they?—A. I don't know. They may. I didn't look that up.

Q. Let me show you the record that does show it. Isn't it a fact that from 1897, when you made that contract with the Galena Company, you reported the locomotive mileage every single year down to the present time?—A. I don't know.

Q. Well, where would the Galena-Signal Company get it unless they got it from the Lehigh Valley Railroad?—A. I don't know that.

Q. They couldn't get it any other place, could they?—A. I don't know but they could.

Q. Don't you know, as a matter of fact, they have no facilities for getting your locomotive mileage? Now be fair about it.—A. Personally, I don't know, because I wasn't there until two years ago.

Q. Well, take two years ago.—A. What is the question now?

Q. Don't you know that during the last two years the Galena-Signal Company have had no way of obtaining your locomotive mileage except from your records?—A. I don't know that they have got any other method of securing our mileage except from

6848 our records.

Q. Don't you know as a railroad man they got them?—A. I don't believe they would have.

Q. Your men don't report to them your locomotive mileage, do they?—A. No, sir.

Q. How do you get it?—A. We get it from the reports of the division superintendents.

Q. And the division superintendents get it from the engineers and from the time-keepers, don't they?—A. From the slips, the time slips.

Q. The time-keepers' slips?—A. And checked with the train sheets.

Q. Now, those reports are not made to the Galena-Signal Company, are they, by your men?—A. Not those individual reports, so far as I know.

Q. You know that they have no way of getting these locomotive mileages except from a report of your company, don't you?—A. As far as I know, there is no other way for them to get them.

Q. Now, I will show you the statement which the Galena-Signal Company furnished us and was put in evidence, Exhibit 440, pages 327, 336, which shows the locomotive mileage run by the locomotives on the Lehigh Valley road for the year ending April 30, 1898, and the last one for the year ending June 30, 1907, and ask you if all the locomotives of the Lehigh Valley road in 1907 didn't run only one-tenth of one per cent more miles than they did in 1897,
6849 although you had many more locomotives.

Mr. ROSENTHAL. Let us assume that to be the fact.

Mr. KELLOGG. I have it figured out here, if you want to see the figures.

Mr. ROSENTHAL. Well, assume that is the fact, Mr. Kellogg, because that suits us.

A. (After figuring.) There was a difference of 71,486 miles, being greater in 1907.

Q. Isn't it a fact the difference is only 28 thousand instead of 70?—A. (After going over figures again.) Well, yes; 28,514. Is that right?

Q. Yes. About one-tenth of one per cent?—A. Just about; yes, sir.

Q. Now, you had a great many more locomotives in 1907 than you had——A. Well, I don't know. That is open to question. We are scrapping a good many light engines and buying large engines, so that the difference may not be very great.

Q. Did you buy all those 113 engines in 1896?

Mr. ROSENTHAL. 103.

Q. 103 engines in 1896?—A. I don't know when they were bought.

Q. What?—A. I said no, sir.

Q. Now, your freight cars have very largely increased in carrying capacity during those years, haven't they?—A. Yes, sir.

Q. And the mileage of the freight cars hasn't increased in
6850 any such proportion, has it?—A. In proportion to the increase in capacity, you mean?

Q. Yes.—A. Well, I think the records will show. I can't recall just what it is.

Q. The mileage of freight cars seems to have increased from 1901 to 1907 about 17 per cent. I don't think I have the figures for the previous years. Those items of mileage, being an important factor, are necessary in order to make a fair comparison of the increased cost of lubricating the road, are they not?—A. The mileage and the weight.

Q. The mileage and weight together?—A. Yes, sir.

Q. You think so, don't you?—A. Yes, sir. You understand we have taken into consideration the mileage of the freight cars and not the passenger cars.

Q. You haven't taken into consideration the mileage of the locomotives at all.—A. Not in this one statement. I don't know whether it is in any of the other statements or not.

Q. I don't think you have in any of them. Now, mileage is also an important factor in lubricating freight cars, isn't it, the same as locomotives?—A. Yes, sir.

Q. And you have given here simply the tons hauled one mile, and you haven't given the mileage of the cars in hauling that, have you?—A. What statement is that?

Q. Defendants' Exhibit 26.

Mr. ROSENTHAL. That covers the mileage, doesn't it?

Mr. KELLOGG. Not at all.

Mr. ROSENTHAL. I think you are mistaken about that.

6851 (The last question was read to the witness.)

WITNESS. That is included, sir.

Q. Well, let us see if it is included. How many miles did all the freight cars run in 1907, as shown by this statement?—A. The mileage of the cars multiplied by the tons hauled gives the figure four billion seven hundred and seventy million, and so forth.

Q. Well, you have got the revenue freight hauled one mile. You haven't shown the number of cars here hauling that freight.—A. That doesn't enter into it as a factor, because we have taken the total mileage, Mr. Kellogg.

Q. Now, in your reports to the Standard company—and your contracts are based exclusively on the mileage of the cars, aren't they?—A. Yes, sir.

Q. Why didn't you make up a statement on the contract and on which you pay?—A. Because in 1896, in looking up the figures with which we could make a comparison, I was unable to get a figure other than the revenue freight tons hauled one mile.

Q. Why didn't you make that up for each year, showing the gradual decrease in cost?—A. My idea was to get up a statement showing the cost prior to the time the Galena contract went into effect and the cost at the present time.

Q. Now, as a matter of fact, the improvement in lubrication has been a matter of gradual growth, hasn't it?—A. Yes, sir.

Q. It didn't all come in one year when the Galena-Signal

6852 took hold of the road, did it?—A. I think not.

Q. It didn't all come in any one year on any railroad that you have been connected with?—A. No, sir.

Q. The elimination of hot boxes and the improvement in lubrication has been a matter of evolution and growth, hasn't it?—A. Yes, sir.

Q. Nearly every year there has been some improvement?—A. Yes, sir.

Q. And that is the case in all of the branches of the service, isn't it?—A. Practically all, I believe.

Q. Now, a statement made up here showing the number of hot boxes in 1896 and the number in 1907 doesn't show the whole story, does it?

Mr. ROSENTHAL. What whole story? It shows the difference in the number of hot boxes, doesn't it?

Mr. KELLOGG. Yes.

A. It shows the improvement made during the two periods.

Q. Yes; but it doesn't show whether that improvement was made all in one year or in twelve years?—A. No, sir.

Q. As a matter of fact, it was a gradual growth for twelve years, wasn't it?—A. I presume it was.

Q. You have no doubt about it, have you?—A. Not very much doubt, although I wasn't here and don't know.

Q. The records will show, won't they?

Mr. ROSENTHAL. Let us assume for the purpose of the record that it has been a gradual improvement. We are willing to concede that. That has been our contention.

6853 Mr. KELLOGG. Well, that is ours, of course. So we are agreed on that.

Mr. ROSENTHAL. Then, we are agreed. It is fortunate we are together on one thing.

Q. Now, in making a contract with the Galena-Signal Company you endeavor to get as low a guaranty for lubricating the locomotives per thousand miles run of each locomotive as you can, don't you?—A. I don't make the contracts, Mr. Kellogg.

Q. You don't make them?—A. No, sir.

Q. Well, that would be your object, wouldn't it?—A. I never had occasion to make a contract of that kind, but I presume it would be.

Q. That stands to reason, doesn't it?—A. I would endeavor to get the lowest guaranty.

Q. Now, do you know that the guaranteed cost of locomotive lubrication on the Lehigh Valley road from 1897 to 1907, inclusive, has exceeded the increase of the weight of the locomotives and the mileage of the locomotives?—A. I don't know that.

Q. Do you know it has increased practically from $1.40 to $2.25?—A. I don't know what it formerly was. I knew it was $2.20.

Q. You looked up the contracts in order to make these statements, didn't you?—A. The Galena contracts?

Q. Yes.—A. No, sir.

Q. How do you know their first contract was in 1897, then?—A. I looked up the record.

Q. You looked up to see what the cost had been, didn't you?

Mr. ROSENTHAL. Cost of what?

6854 Mr. KELLOGG. Of lubricating locomotives.

A. We got from our records, you know, the cost of lubricating locomotives, but that is not in the contract.

Q. That is the same record that contained the mileage and the guaranty, isn't it?—A. I don't think it named the guaranty.

Q. I show you the guaranties of the Galena-Signal Oil Company to the Lehigh Valley road from 1898 down to 1907, as they appear in evidence, undisputed, and ask you if the percentage of increase isn't about 55 per cent?

Mr. ROSENTHAL. Of what?

Mr. KELLOGG. Of the cost.

Mr. ROSENTHAL. Of what—the locomotives?

Mr. KELLOGG. The locomotives.

Mr. ROSENTHAL. Let us see the figures before we agree on the record here as to the assumption of their correctness. That is a compilation of guaranties you are showing the witness now?

Mr. KELLOGG. Sure.

Mr ROSENTHAL. It is not a compilation of the actual cost?

Mr. KELLOGG. Guaranties, I was asking about, exclusively.

Mr. ROSENTHAL. Your question doesn't show that, Mr. Kellogg. The guaranty isn't what determines the actual cost.

Mr. CRAWFORD. It may or it may not.

The following question was read: "I show you the guaranties of the Galena-Signal Oil Company to the Lehigh Valley road from 1898 down to 1907, as they appear in evidence, undisputed, and
6855 ask you if the percentage of increase isn't about 55 per cent?"

Mr. ROSENTHAL. Percentage of increase of locomotive guaranty?

Mr. KELLOGG. Yes.

Q. What is your answer?—A. It is about that, if my figures are right.

Q. The weight of your locomotives, according to your statement, from 1896 down to 1907, inclusive, was only 48 per cent; is that correct?

Mr. ROSENTHAL. 69.

Mr. KELLOGG. 48.

A. That is the weight of the average locomotive, but the total weight has increased 69 per cent.

Q. But the total weight included a lot of additional locomotives, didn't it?

Mr. ROSENTHAL. Of course; it had to.

A. It included all the locomotives; yes, sir.

Q. Yes. It included a lot of additional locomotives, didn't it?—A. It included all the locomotives.

Q. Did it include a lot of additional locomotives?—A. I don't know what you mean by "additional locomotives."

Q. There were more locomotives in 1898 than there were in 1896?—A. Well, I presume so, but I don't know—if you have got a record there to show it.

Q. According to your own statement there were 103 more locomotives in 1907 than there were in 1896; isn't that correct?—A. Yes, sir; that is right.

6856 Q. Then it did include more locomotives, didn't it?—A. You were talking about 1898, weren't you?

Q. No; I was talking about 1896.—A. No; this previous statement was 1898.

Q. I asked you if the average weight of your locomotives had not increased 48 per cent.—A. Since when?

Q. Since 1896.

Mr. ROSENTHAL. No; that wasn't your question. I call your attention to the fact that Exhibit 26 institutes a comparison between 1896 and 1907, and your question sought to institute, inadvertently, a comparison between 1898 and 1907.

Mr. KELLOGG. Not at all. I will ask the question again now.

Mr. ROSENTHAL. That is the shortest way around it.

Q. From 1896 down to 1907, the average weight of your locomotives, according to your Exhibit 27, had increased 48 per cent. Is that correct?—A. Let me look at my statement.

(Mr. Kellogg hands Exhibit 27 to the witness.)

WITNESS. Yes; the average weight had increased 48 per cent.

6857 Mr. KELLOGG. Well, that is what I ask.

Mr. ROSENTHAL. Of a given engine.

WITNESS. Yes, of a given engine. That is the average per engine.

Q. How did you arrive at that?—You took all the engines in 1896 and divided them by the total weight, didn't you?—A. Took all the engines in 1896, added their weights together, and divided them by the total engines.

Q. And in 1907 you did the same thing?—A. Yes, sir.

Q. And that gave you an average of 48 per cent increase?—A. Yes, sir.

Q. Per engine?—A. Average weight per engine, yes, sir.

Mr. KELLOGG. Yes, sir; that is it exactly.

Mr. ROSENTHAL. What is the total weight?

Q. Now, the total weight, you said, increased about 60 per cent?—A. Sixty-nine.

Q. And you had 103 more engines, hadn't you?—A. Yes, sir.

Q. And they only ran $\frac{1}{10}$ of 1 per cent more miles; isn't that true—or about that?

Mr. ROSENTHAL. Hasn't that been repeatedly answered?

A. I don't recall that figure—whether it was those two periods or not, I don't know.

Q. Well, 1898 down to the present time; the increase was $\frac{1}{10}$ of 1 per cent?—A. I believe so.

Q. Your guaranteed cost of lubrication increased about 55 per cent per thousand miles' run?—A. Just about.

6858 Q. In your statements here you include the tender in your increased weight of locomotives?—A. Yes, sir.

Q. The tender has increased more than the engine, hasn't it, correspondingly?—A. I didn't figure that separately. I couldn't say positively whether it has or not; I don't know.

Q. You lubricate tenders with the same oil that you do a freight car, don't you?—A. Yes.

Q. And you don't use engine oil?—A. Not on the tender.

Q. Or valve oil on the tender?—A. No, sir.

Q. So that you have figured the weight of the tender in to the cost of lubricating your locomotives, haven't you?—A. Yes, sir.

Q. When you do lubricate it with ordinary car oil, and don't lubricate it with engine oil at all?—A. It is included in the cost of lubrication of the locomotive. We could lubricate it with any kind of oil we wanted to. We could put valve oil in if we cared to.

Q. You say that the cost of lubricating an engine should increase substantially according to the additional weight of the engine, don't you?—A. Yes, sir.

Q. Why is that? Because you use more high-priced oils, isn't it?—A. Use more oil to the engine; there are more parts to it.

Q. While, as a matter of fact, in lubricating your tenders, you use the ordinary car oil?—A. Yes, sir.

Q. So the increased weight of the tender should not be con-
6859 sidered as adding to the percentage of lubricating the engine, should it?—A. Certainly it should.

Q. It should? At the high price the engine oil is figured at?—A. You are endeavoring to arrive at the cost of the lubrication of the locomotive.

Mr. KELLOGG. Well, I think that is perfectly evident.

Q. Now, the Lehigh Valley Road runs from New York up through Pennsylvania in the coal regions, doesn't it?—A. It runs from Jersey City.

Q. Through Pennsylvania, in the coal regions, and to Buffalo?—A. Yes, sir.

Q. It has some heavy grades, hasn't it?—A. Yes, sir.

Q. Uses large equipment?—A. On the heavy grades we use large equipment; yes, sir.

Q. How does it compare with the Pennsylvania lines?—A. I don't know very much about the Pennsylvania.

Q. Well, in a general way.—A. I really don't know, because I don't know their grades. They run through an entirely different territory from the Lehigh Valley.

Q. The Pennsylvania has substantially the same kind of equipment, hasn't it?—A. No, sir, I don't think so, from what I have seen.

Q. In what does it differ? Larger or smaller than yours?—A. I couldn't answer that question unless I had the figures to substantiate it.

Q. You have no knowledge whatever as to whether the Pennsyl-
vania lines' equipment would be substantially the same as
6860 yours or not; that is, I mean the same kind of equipment?—A. I have no personal knowledge; no, sir.

Q. Now you say you know of two men hired from the railroads working for the Galena. Who are those two men?—A. One man by the name of Mr. Wright and the other by the name of Mr. Brown, who was on the New Haven. Mr. Brown is dead now.

Q. What roads did you say they were working for?—A. You mean prior to going with the Galena company?

Q. Yes.—A. Mr. Brown was working on the D., L. & W. Railroad, and Mr. Wright was on the Pennsylvania.

Q. Do you know what salaries they were getting?—A. No, sir.

Q. What were their positions?—A. Mr. Brown was road foreman of engines on the D., L. & W.; I couldn't say what position Mr. Wright held, but he was in the car department, so I understand.

Q. Is either of those men working on your line?—A. Mr. Wright, the Galena man, is assigned now to the Lehigh Valley Railroad.

Q. Don't you think the guaranty of the Galena-Signal Oil has increased pretty fast since 1897—locomotive guaranty?—A. On the Lehigh Valley?

Q. Yes.—A. Not considering the increase in the size and weight of cars and locomotives.

6861 Q. Do you know of any reason why the Pennsylvania should have a guaranty on its division west of Pittsburg, during any of those years of less than half of that?—A. I don't know.

Q. Your company pays substantially the full invoice price now, doesn't it?—A. Our lubrication has cost us very close to the guaranty, consequently we pay about the price per gallon according to the contract.

Q. That is, you pay substantially the invoice price?—A. Yes, sir; I believe so.

Q. Of 48, 28, and 18 cents, respectively?—A. Yes, sir.

Q. What percentage of the cost of lubricating your road is engine expense?—A. Offhand, I should say it is about sixty per cent.

Q. Have you made any figures?—A. No. I think the figures are shown in some of these statements, though. I don't quite recall them.

Q. You know the Pennsylvania line from Pittsburg to Chicago—the Pittsburg, Fort Wayne & Chicago—don't you?—A. I know of it.

Q. You have been over it a great many times, haven't you?—A. I remember but once or twice that I have passed over the road. I know nothing about it at all physically. I have been over it at night.

Q. They run substantially the same weight of equipment that you do, don't they?—A. I don't know.

Q. Fully as many fast trains as you do, don't they?—A. I couldn't say; I don't know.

6862 Q. You know in a general way, don't you?—A. I have never been over the road but twice, I think, and then it was in the nighttime. I really don't know a thing about it.

Q. The figures in evidence show that your locomotive expense is a little over seventy per cent. Have you made any calculation on that?—A. No; I have not. I think the figures were in some of these statements here. From a rough estimate, as I have carried it in my mind, I said I should call it sixty per cent.

Q. I call your attention to the exhibits in evidence in this case, showing the following guaranties given to the Pennsylvania Company west of Pittsburg, and to the Lehigh Valley Company: For 1902, on the Pennsylvania Company, 74.6 cents for locomotives, 6.3 cents for passenger cars, and 5.3 for freight cars. On the Lehigh Valley for the same year, $1.50 for locomotives, twenty-five cents for passenger cars, and 7½ cents for freight cars. Do you know of any reason why there should be that difference?—A. No, sir.

Q. Do you believe there is any reason?—A. I presume there is a reason, or this difference wouldn't exist, but I don't know what it is.

Q. But, as an expert, you don't know of any reason why it should cost you twice as much to lubricate your engines per thousand mile run, and four times as much to lubricate your passenger cars per thousand miles' run, do you?

Mr. ROSENTHAL. He hasn't said that.

A. Not knowing anything about the conditions on the Pennsylvania Railroad, I certainly am not in a position to answer the question.

6863 Q. You put yourself up as an expert on this question, don't you?—A. No, sir.

Q. You have been giving opinions on this subject, haven't you?—A. Yes, sir.

Q. But you don't know of any reason why they should have their lubrication that cheap, as compared with yours?—A. I do not.

Q. Do you believe there is any physical reason, in the weight of equipment, whereby their road should have a locomotive guaranty of one-half yours?

Mr. ROSENTHAL. I submit that has just been answered—the exact question.

A. I can't answer that, not knowing the conditions.

Q. Well, what is your opinion?—A. I would be very foolish to express an opinion if I don't know anything about the conditions.

Q. You have been expressing opinions about a great many subjects here, haven't you?—A. Well, I knew something about the conditions, if I have.

Q. You have expressed opinions as to the correctness of these exhibits, five years before you were on the Lehigh Valley road at all?—A. Yes, sir.

Q. And that is purely hearsay, as fas as you are concerned, isn't it?—A. No, sir; I looked up the records personally.

Q. And examined the records?—A. I personally went over it with the man that got these records together.

6864 Q. You have no general knowledge whatever as to the general class of equipment on any road except the Lehigh Valley?—A. The roads I have been on, I know the general type of engines, but not on the roads that I have not been on and which I have not been alongside of.

Q. Have you been over the New York Central?—A. I have been over that, part way, several times; yes, sir.

Q. Have you ever been over the Pennsylvania lines?—A. Very few times, particularly west of Pittsburg. I have been to Pittsburg several times, but usually at night.

Q. You know the general weight of engines that are manufactured by locomotive companies, don't you?—A. I know the weights of the different types of engines, in a general way.

Q. You know, in a general way, what sort of equipment is run on

a big road like the Pennsylvania, don't you?—A. What I see in Jersey City; I see those coming in.

Q. You don't know anything about only what you have seen at Jersey City?—A. That is all I would want to testify to.

Q. You would have to see it with your own eyes before you would say you had any knowledge about the Pennsylvania's at all?—A. Yes, sir; anything that I would care to testify to.

Q. What other roads have you been with?—A. I have been with the Union Pacific, the New Haven, the Erie, and the Lehigh Valley.

Q. Don't you keep posted generally on the weight of equipment of railroads, the kind of engines?—A. I keep posted
6865 on the engines that are being built to-day, but I don't care anything about the old engines, of which there is a great percentage on the Pennsylvania, and all other railroads, I presume.

Q. You know, as a matter of general knowledge, that other roads have bought new engines, besides yours, don't you?—A. Yes, sir.

Q. You know the Pennsylvania bought new engines, don't you?—A. I saw them being built, at Philadelphia; that is all I do know.

Q. You know they are large engines, don't you?—A. I wouldn't consider them very large.

Q. You know they run over heavy grades, don't you?—A. I don't know positively, except one grade.

Q. You know of only one grade on the Pennsylvania line?—A. You said "heavy grade." That is the only grade I know, and I have passed over that to Altoona.

Q. Have you ever investigated the cost of lubricating other roads?—A. No, sir.

Q. You have been perfectly satisfied to go ahead and take whatever the Standard offered you?—A. That wasn't up to me. When I came on the road the contract was in force on the railroad; there was no use for me to go to work and find out what other people were doing, because it would do me no good.

Q. So you never interested yourself in it at all?—A. No, sir,
6866 not in the guaranties on any other railroads. I don't know anything about any other railroad except the Lehigh Valley.

Q. And you don't know anything about the cost of lubrication of other roads?—A. No, sir; I can't tell you.

Q. Or whether they get theirs for half the price you get yours or not?—A. No, sir.

Q. Is the lubrication of the road under your charge?—A. General supervision, yes, sir.

Q. And you have no desire to inquire into the cost on other roads whatever?—A. I can't tell you what it is costing any other railroad, Mr. Kellogg, to lubricate their engines or cars.

Q. And you have never tried to find out?—A. Oh, I presume I have in times gone by, but I haven't recently.

Q. Do you know whether you ever have or haven't?—A. No, I can't recall an instance.

Q. You are perfectly satisfied with the present cost of lubricating the Lehigh Valley road, are you?—A. I think we are lubricating our engines and cars very reasonably.

Q. Although you don't know anything about the cost on any other road?—A. Except the other roads I have been on.

Q. And if all the roads in the United States were lubricating their equipment cheaper than your road, that wouldn't interest you?—A. Oh, yes, certainly it would, if I knew it.

Q. You have never had any experience with any other oil company except the Galena Signal Company?—A. No, sir.

Q. You don't know anything about the methods of other companies that lubricate railroads?—A. No, sir.

6867 Q. And you are not able to give an opinion as to whether the Galena-Signal Company's system is better than the others?—A. No; because I don't know of any other experts.

Q. You don't know whether there is any other?—A. No, sir.

Q. You never have inquired?—A. No, sir.

Q. Never have asked any bids?—A. No; that would not be within my province—to ask any bids.

Redirect examination by Mr. ROSENTHAL:

Q. Mr. Hibbits, the present Galena contract was made in 1904, was it not, and ran for a period of five years, so that it does not terminate until 1909; isn't that the fact?—A. That is the fact.

Q. So that there would be no purpose in your instituting any inquiry until about the termination of the existing contract; isn't that so?—A. That is true.

Q. And you were not with the road in 1904, when that contract was made?—A. No, sir.

Q. So you have been operating under a contract which was in existence when you came there, and which does not terminate for almost two years yet?—A. That is true.

Q. Now, Exhibit 26 purports to be a statement showing the reduction in cost of lubrication between the years 1896 and 1907—comparing those two years. Is that an accurate and honest statement of just what it purports to be?—A. You mean this statement as a whole?

Q. Yes, sir.—A. Yes, sir.

6868 Mr. KELLOGG. Of course. But it doesn't purport to tell the story.

Mr. ROSENTHAL. Well, we will show. Let's see if it doesn't.

Mr. KELLOGG. He testified it didn't.

Mr. ROSENTHAL. Well, he didn't testify it didn't. We will show you, even, that he didn't so testify.

Mr. KELLOGG. No; you can't do anything of the kind.

Mr. ROSENTHAL. We can't get you to admit it, but we will show you, is my statement.

Mr. KELLOGG. You will try it, you mean?

Mr. ROSENTHAL. No; we will show you.

Q. Now, the element of weight, you have testified, is the most important element in connection with the determination of the cost of lubrication?—A. I believe it is.

Q. If you assume that the mileage was precisely the same in 1896 as it was in 1907, then the element of weight would be the only factor to be considered in determining the relative cost of lubrication, would it not?—A. Yes, sir.

Q. The statement has been made by Mr. Kellogg that the figures already in evidence show the only difference in mileage between 1896 and 1897 was a difference of 1/10th of one per cent; that is to say, that in 1907 the mileage was 1/10th of one per cent more than it was in 1896. So that the prime element in the comparison of those two years, in the determination of the cost of lubrication, would
6869 necessarily be the difference in weight, would it not?—A. Yes, sir.

Mr. KELLOGG. But this statement doesn't show the mileage, does it?

Mr. ROSENTHAL. Oh, well, you have gone all over that.

WITNESS. Which statement?

Mr. KELLOGG. The one you have in your hand.

Mr. ROSENTHAL. Now wait a minute and let me examine on redirect. Of course it doesn't show the mileage, and we have conceded it. It doesn't pretend to show the mileage, except as to freight cars——

Mr. KELLOGG. Certainly not.

Mr. ROSENTHAL. And you have asked him that at least forty times. Now let me ask on redirect.

Mr. KELLOGG. It took about thirty-nine to get him to answer it.

Mr. ROSENTHAL. No, it didn't; it took him about thirty-nine seconds.

Q. The increase of one-tenth of one per cent in the mileage would not be a factor of any considerable importance in determining the comparative cost of lubrication betwen those two years, standing by itself, would it?—A. No, sir.

Q. Not one way or the other. You can practically assume that mileage is a common factor in both of those years and eliminate it, can't you?—A. I believe you could.

Q. So, inasmuch as mileage is a common factor, that need not be taken into consideration in determining the cost of lubrication
6870 betwen those two years, because the mileage was substantially the same.—A. The locomotive mileage?

Q. Yes, sir; I mean locomotive mileage. The statement at the bottom of Exhibit 26, to wit, that the weight of the locomotives increased sixty-nine per cent, whereas the cost of lubrication increased but thirty-seven per cent, is an accurate comparison of the actual cost of lubrication between those two years, is it not?—A. Yes, sir.

Q. Suppose, on Exhibit 26, right underneath your locomotive ton figures, toward the bottom of that exhibit, opposite the item "Total weight of engines, 60,865 tons" in 1896, 102,801 tons in 1907—suppose directly underneath that you had the locomotive mileage of,

if you please, one billion miles in 1896 and one billion miles in 1907, what relation, if any, in determining the comparative cost of lubrication of those two years would your locomotive mileage, as so stated, have?—A. It would be a common factor and it could be eliminated.

Q. And you would get precisely the same result that you have gotten here in this Exhibit 26, would you not?—A. Yes, sir.

Mr. KELLOGG. Suppose it was half as much in one year as it was in another year; you would not get the same result, would you?

Mr. ROSENTHAL. Wait a minute. Take the witness when it comes your turn, won't you?

Mr. KELLOGG. Of course we all know that the exhibit was made up to fool somebody, but we expect that of these men.

6871 Q. Now take Exhibit 26, in so far as it covers freight cars. I direct your attention to the statement, "Revenue freight tons hauled one mile," in 1896 being 2,889,539,293, and in 1897 being 4,770,099,930; don't those figures include or embody within them the number of freight miles?—A. Yes, sir.

Q. And is not that the fairest test that could be indulged in, in getting at the actual cost of freight lubrication to the railroad company?—A. We believe so.

Q. To consider by comparison the revenue freight tons hauled one mile?—A. Yes, sir.

Q. That is to say, taking the two different years, just as you have here (1896 and 1907), and your cost in 1907 was, in round numbers, $20,000, and in 1896 it was, in round numbers, $20,000, as shown here; and in 1907 your revenue freight tons hauled one mile, in round numbers, are substantially twice what they were in 1896, then your freight car lubrication, as a matter of fact, has cost you, in round numbers, one half in 1907 what it cost you in 1896; isn't that true?—A. Just about.

Q. Using car miles simply as a basis, you would not get, so far as the railroad company is concerned, the true cost of lubrication, would you, per unit?—A. No, it is not a fair unit.

Q. Why isn't it a fair unit?—A. Because it does not take into consideration the weight.

Q. That is to say, where you use car miles simply as the unit that does not take into consideration the great increase that there

6872 might have been in the weight of the equipment, and consequently of course in the lubricating surface?—A. That is true. It would not take into consideration the difference in the weights of cars years ago as compared with what they are now.

Q. That is it exactly. So a statement which showed simply car mileage would entirely eliminate the element of weight as a factor of the cost of lubrication, wouldn't it?—A. Yes, sir.

Q. And the element of increased tonnage?—A. Yes, sir.

Q. Now, what the railroad company is really concerned about is the revenue freight tons hauled, isn't it, so far as its freight lubrication cost is concerned?—A. Well, that is a fair comparison to make.

Q. That is to say, in the last analysis, when you get at the actual cost of freight lubrication to the railroad company, that means cost in connection with the revenue freight tons hauled by that road, doesn't it?—A. Yes, sir.

Q. And that is exactly what this statement in Exhibit 26 shows?—A. Yes, sir.

Q. So that when the Galena Company contracts, as it did with the Lehigh Valley in 1904, basing its contract simply upon car mileage and eliminating the question of weight, that is a contract which, in so far as that particular feature of it is concerned, is highly favorable to the railroad company, in that it eliminates from consideration the important element of weight as a factor of cost, isn't that so?—A. Yes, sir.

Q. And that is one reason why the railroad companies are
6873 probably desirous of maintaining that form of contract?—A. That I don't know, because I have nothing to do with the contract.

Q. Now, I neglected to ask you just how much you were in touch, in your work on the Lehigh Valley road, with the Galena experts.—A. I see Mr. Wright every two or three weeks, and I presume I write him on an average once in two weeks, asking him to investigate certain things pertaining to the lubrication of cars or engines. And he comes to my office and we confer on these various subjects, after he has investigated them.

Q. In these conferences are all sorts of subject-matters relating to the general question of lubrication discussed and gone over?—A. From time to time. At different times we probably discuss about every phase of the question.

Q. You get suggestions from the expert with regard to the character of the equipment in its relation to lubrication?—A. What do you mean by "the character of the equipment," Mr. Rosenthal?

Q. Well, the method of construction—changes in construction.—A. No; I don't think we have ever had that particular point brought up.

Q. But there are innumerable questions that are constantly arising concerning which you are constantly conferring?—A. Yes, sir.

Q. Either by letter or by word of mouth?—A. Yes, sir.

6874 Recross-examination by Mr. KELLOGG:

Q. You say, Mr. Hibbits, that Exhibit 26, under the head "Freight car," includes and shows the car mileage?—A. The freight-car mileage is included in arriving at the revenue freight tons hauled 1 mile.

Q. Can any human being figure out the car mileage from that statement?—A. He can not separate it.

Q. No, sir; it is not possible, is it?—A. No, sir.

Q. And you knew it when you brought it here, didn't you?—A. I can give it to you.

Q. You can give it to us from the books?—A. From our records.

Q. Yes; but you knew that statement didn't show it when you brought it here, didn't you?—A. Why, certainly.

Q. Then why did you testify it includes it?—A. Because we figured it through.

Q. Yes; but you didn't bring the figures here.—A. But I can do it.

Mr. ROSENTHAL. Why, of course you can. If Mr. Kellogg wants those figures you are perfectly willing to figure it out for him, aren't you?

WITNESS. Yes, sir.

Mr. KELLOGG. You thought I would never discover it.

Mr. ROSENTHAL. And we cheerfully tender you his services in that regard.

Mr. KELLOGG. Well, you can control them, I have no doubt.

6875 WITNESS. I didn't think it would be necessary to show you exactly the way we arrived at those figures——.

Mr. KELLOGG. You needn't answer any questions until you are asked.

(Adjourned to 10.30 a. m., May 28, 1908.)

6876 722 CUSTOM-HOUSE, NEW YORK CITY,
May 28, 1908—10.30 a. m.

The hearing was resumed before the special examiner, Hon. Franklin Ferriss, at the above time and place.

Present: On behalf of the petitioner, Mr. Frank B. Kellogg, Mr. Charles B. Morrison, Mr. J. Harwood Graves; on behalf of the defendants: Mr. Moritz Rosenthal, Mr. John G. Milburn, Mr. Frank L. Crawford, Mr. W. Cleveland Runyon.

E. V. SEDGWICK, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. ROSENTHAL:

Q. Where do you live, Mr. Sedgwick?—A. My headquarters are in Franklin, Pennsylvania.

Q. How long have you lived there?—A. I have had headquarters there for the past eighteen months.

Q. What is your occupation?—A. Assistant manager of the export department of the Galena-Signal Oil Company.

Q. How long have you been so occupied?—A. As assistant manager of the export department, for the past eighteen months.

Q. What was your business immediately before that?—A. I was manager of exports, in Europe, for the Galena-Signal Oil Company.

6877 Q. For how long?—A. For a period of about eighteen months.

Q. And in what portion or portions of Europe?—A. I had charge of the export department in Spain, Italy, France, Great Britain, Denmark, Sweden, Egypt, and Switzerland.

Q. How long have you been connected with the Galena-Signal Company?—A. Since 1898.

Q. In what position did you start?—A. As an expert in South America.

Q. What had been your occupation before that?—A. In the railroad business, from 1883.

Q. With what railroads had you been connected?—A. I have them down here [referring to a memorandum].

Q. Don't you remember them?—A. I remember the railroads, yes, sir, but I can not give the dates; I can't remember the dates exactly. I was with the Mexican Central Railroad first.

Q. About when did you start with the Mexican Central?—A. My work started with the Mexican Central Railroad as a machinist; afterwards, as a draftsman; afterwards, as a fireman; afterwards, as a foreman, and, later on, as master mechanic.

Q. About how many years were you with the Mexican Central?—A. I worked for the Mexican Central three different times. I left the Mexican Central and went to the Duluth, South Shore & Atlantic Railway.

Q. Located where?—A. At Marquette, Michigan.

Q. And in what position were you?—A. As superintendent
6878 of motive power.

Q. For how many years?—A. For about ten months.

Q. And then where did you go?—A. Then I went to the Mexican National Railway, as a master mechanic, at San Luis Potosi.

Q. How long were you there?—A. About a year.

Q. Always as master mechanic?—A. As master mechanic, yes, sir.

Q. Then where did you go?—A. From there I went to the Mexican Central Railway, again as master mechanic, and stayed, I think, for two years and a half, about that, as master mechanic, at different divisions. From there I went to the Interoceanic Railway, as superintendent of motive power.

Q. What is the Interoceanic Railway?—A. The Interoceanic Railway is a railway that runs from Veracruz, in Mexico, to the City of Mexico, and has branches to Puenti Ixtla.

Q. It is a Mexican railway?—A. It is a Mexican railroad; yes, sir.

Q. You were superintendent of motive power for the Interoceanic?—A. Yes, sir.

Q. Now, you started with the Galena-Signal in the year 1898, as I understand you?—A. Yes, sir.

Q. As an expert where?—A. In South America.

Q. Covering what countries in South America?—A. My first actual expert work in South America was in Chile.

6879 Q. Will you please tell us just what you did there?—A. The representative of the Galena-Oil Company, or, rather, the salesman, secured a trial order from the Antofagasta & Bolivian Railway, which at that time was using lard oil for machinery lubrication, and tallow for cylinder and valve lubrication.

Q. Was that a railroad located in Chile?—A. Yes, sir. I was put upon the road to prove that our oils were satisfactory lubricants. I rode locomotives. I started out, first, with one locomotive, and rode that locomotive, putting in our valve oil and our engine oil.

Q. What do you mean when you say you started out with one locomotive?—A. I put the oil on one locomotive to start with, that is, the Galena oil—Perfection valve oil and Galena engine oil.

Q. You actually applied it yourself?—A. I did not. The locomotive engineer applied it; but I rode with him and watched the application.

Q. And it was done under your direction and supervision?—A. Under my direction; yes, sir.

Q. When was that? In the year 1898?—A. In the year 1898; yes, sir.

Q. Now, tell me just how you worked up that business on that road.—A. The superintendent of motive power did not believe that anything but tallow——

Mr. KELLOGG. I object to that. Don't state what he believed; just state what you did. We object to that as immaterial.

6880 Q. State just what was done.—A. We started out by mixing 50 per cent of tallow with our valve oil.

Q. Why did you do that?—A. At the insistence of the superintendent of motive power of that road. We left our terminal station, after having filled the lubricators, oil cups, and packing the different boxes, and went over the road, making our regular run. After the return to the headquarters on the following trip we only put in 25 per cent of tallow in our valve oil.

Q. At whose instance was that done?—A. At my instance; at my request. We made another trip, under the same circumstances as before. We started out again on the third trip, having reduced the tallow to 5 per cent in the Perfection valve oil. Then, after that, we did away with the tallow entirely.

Q. At whose instance?—A. At my instance.

Q. And with what degree of success?—A. Perfect success. We had no trouble from any delay, no hot boxes, and the engine pulled the same number of cars that she always had pulled, and the superintendent of motive power was perfectly satisfied that our oil was a good lubricant.

Q. And in that way you brought about the abandonment of the use of tallow as a lubricant on that road?—A. I did.

Q. What was the very next thing you did on that particular road in connection with your work there?—A. The next thing I did in connection with the work, after having had ten or twelve locomotives running and using Galena oil, I took up——

6881 Q. How did you get ten or twelve locomotives started?—A. By having proved by one locomotive that the oil was a satisfactory lubricant, and the superintendent of motive power was willing to apply the oil to the other ten or twelve locomotives.

Q. Did you have anything to do with the application of the oil to those other ten or twelve locomotives?—A. Not by riding them; no, sir. I stood around and saw the way they were equipped and watched the packing of the tender boxes and watched the packing of the driving boxes.

Q. You mean by watching that you supervised it?—A. I supervised it; yes, sir. And offered suggestions as to the proper method of applying my methods, or the Galena methods, of putting oil in tender boxes and in driving boxes and in engine truck boxes. From that I took up the question of car lubrication.

Q. What was the condition of car lubrication when you first began your work?—A. The condition of car lubrication at that time was entirely different from what it is at the present time. At that time the cars were lubricated by a method that is used in Europe. In the car boxes or the journal boxes there was a series of pads, or one pad, that came up around the axle and a spring underneath and from this pad ran down some wicks. These wicks were placed in the oil, and the oil was supposed to feed up through these wicks, through this pad, and thus meet the journal.

6882 Q. By capillary attraction?—A. By capillary attraction. At first, at the start, we used Galena oil just the same as they used the lard oil.

Q. What oil had they been using in connection with the lubrication of their cars with those pads that you have described?—A. Lard oil.

Q. That is, an oil the essential basis of which was lard?—A. Made from lard.

Q. What did you do, now, in that connection?—A. In that case there was nothing for me to do but to put in Galena oils in place of lard oil.

Q. Did you do that?—A. I did.

Q. And how did you accomplish that?—A. In cases where a box needed oil, simply to pour the Galena oil into this box. That was the only thing I could do in that case.

Q. Go right ahead and tell what transpired there.—A. In the course of a few months they gave up the purchase, entirely, of tallow and lard oils, and purchased Galena oils, and are using them to this day. The system of lubricating their car boxes has been entirely changed. They have now adopted the method used in the United States.

Q. Under whose advice and suggestion?—A. Under my suggestion, I think.

Q. You mean by that, that they have abandoned the use of this wick system?—A. Yes. That system is being abandoned in all countries where they have very dusty tracks.

6883 Q. Was that the case in Chile?—A. It was the case in Chile.

Q. What was the very next thing that you did on that Chile road?—A. After that I left that Chile road and went to the State Railways of Chile.

Q. Before you got away from that road, had you introduced your Galena lubrication on both passenger and freight cars?—A. Yes, sir.

Q. In the way that you have described?—A. Yes, sir.

Q. How long did it take you to accomplish that result, namely, of introducing your Galena-Signal oils to the exclusion of tallow oils, on both the locomotives and the freight and passenger cars of that

one road?—A. It took the time that it took to consume about 250 barrels of oil; I should say within three months.

Q. It took you about three months?—A. I didn't stay there all the time, but it was about three months that it took before they satisfied themselves that they wanted to use Galena oils.

Q. Was any one left there by you, as your substitute when you were not there?—A. Yes, sir.

Q. Who was it?—A. A man by the name of Oscar Huber.

Q. And was he an expert?—A. Pardon me—the first man that was left there was a man named Louis Sherman.

Q. Was he an expert in the employ of the Galena Company?—A. He was.

Q. He continued supervising that work as a Galena expert during your absence?—A. Yes, sir.

6884 Q. Did you make a contract with that road?—A. No, sir.

Q. Do you still continue to furnish that road its lubrication?—A. Yes, sir.

Q. What year was that—1898?—A. 1898.

Q. You have been continuously furnishing that road its lubrication ever since that time, have you?—A. Well, up to 18 months ago they were. I have not looked up the figures. Mr. Steinbrenner can give you the figures on that.

Q. What you mean is that during the past 18 months you are not familiar with the situation?—A. I am not familiar with it.

Q. What was the next road that you went to in South America?—A. The State Railways of Chile.

Q. By the way, give us some idea of the size of that first road.—A. It is a road about 700 miles long. It starts from sea level and goes up to an elevation of 13,000 feet, to a place called Oruro. It has quite a large quantity of two per cent grade, and a great deal of level track.

Q. Is it one of the important roads of Chile?—A. It is the principal road between Chile and Bolivia. It is the only connection that Chile has with Bolivia.

Q. Does it go over the Andes Mountains?—A. It goes up through the Andes Mountains.

Q. From Chile into Bolivia?—A. Into Bolivia.

Q. What was the next road?—A. The State Railways of Chile.

Q. What sort of a road was that?—A. It is a road that belongs to the Government of Chile. Their main line runs from

6885 the north to the south. All told, I should judge they would have in the neighborhood of a thousand miles of railroad. At my time, while I was there, they had some 400 locomotives.

Q. How were they lubricating that road when you came there?—A. They were buying oils on open tenders. When they needed any oil they asked for tenders. These tenders were put in——

Q. What do you mean by that?—A. Bids, as to prices per gallon. They did not confine themselves to prices entirely, but also quality. These bids were passed upon by the officials of the State Railway,

and they gave their business to whomever they thought had the most satisfactory oil.

Q. Was that a railway owned by the Government?—A. Yes, sir.

Q. And operated as such?—A. Yes, sir.

Q. What kind of oils were they using there? Lard oils?—A. No, sir. One time they would use one kind of an oil, and another time another. They were using American oils, and Russian oils—different makes.

Q. Do you know where they were getting their American oils from?—A. They got some from Fisk Bros., some from Thompson & Bedford——

Q. That is a Standard Oil concern, isn't it?—A. I don't know that it is, but I have seen it so reported. And Borne-Serymser Company——

Mr. KELLOGG. That is a Standard Oil company, too, isn't it?

WITNESS. Yes.

Mr. ROSENTHAL. That is also Standard Oil, I think—or was.

Q. Now, what did you do?—A. I went in there and made
6886 trials with our oil.

Q. What was the first thing you did?—A. The first thing I did there—they were having trouble with their express train running between Santiago and Valparaiso. They were having men to ride upon the trains to look after the hot boxes, and they also had men halfway over the division road to look after the hot boxes. A great deal of oil was being used. So I took the train and used Galena oil in its lubrication, packing the boxes by the method that the Galena Oil Company's experts recommend. I had no trouble whatever with the train. I rode the train myself for two or three days, with their regular man, who had been riding the train.

Q. Was their regular man their own expert?—A. Their own man that they had watching this train. He was a car repairer, a car oiler. After a few days they decided that it was not necessary for this man to ride the train. And the hot boxes stopped.

Q. You mean after they began using Galena oil and the Galena method of packing?—A. Yes, sir.

Q. So you first started it on that through train?—A. On that express train.

Q. And you rode on the train yourself, and supervised the institution of the oil under your Galena methods?—A. Yes.

Q. Now, what is the very next thing that happened there?—A. The next thing that happened there was that I put the oil, or requested the superintendent of motive power to put the oil upon the locomotives, as far as he could go with the locomotives,
6887 that is, as far as we had sufficient oil, to give the locomotives a fair trial. The packing of the boxes was under my supervision. I used the Galena methods. After that I did not ride locomotives there on that test. They ran along for some time, until they used up the oil that they had purchased from the Galena Oil Company for a trial. Since that time, spasmodically, they have bought

Galena oils. That was nearly ten years ago. They have bought oils from the Galena Company and they have bought oils from Fisk Bros., and from Russians, and from other people. I have since understood that on the first of April they signed a contract with the Galena-Signal Oil Company for lubrication.

Q. On what road did you next introduce Galena oil?—A. In the Argentine Republic, on the Central Norte Railway. That was a railway owned by the Government, purchasing oils that came from England—purchasing them locally in Buenos Aires.

Q. How much of a road was that?—A. I can not give you the exact mileage. I can tell you more or less by the locomotives. I think about 125 locomotives.

Q. And that was a road running out of Buenos Aires?—A. No, sir; running out of Tucuman, which is in the interior. The intention is to connect this railway with Bolivia.

Q. You say that when you came there they were buying their oils from England?—A. Yes, sir.

Q. At Buenos Aires?—A. At Buenos Aires.

Mr. KELLOGG. May I enter an objection, Mr. Rosenthal, to
6888 all this class of testimony, as immaterial in this case, and not repeat it.

Mr. ROSENTHAL. Surely.

Mr. KELLOGG. It may be taken as entered to all the testimony bearing on these foreign railways—as entirely immaterial and irrelevant.

Mr. ROSENTHAL. It so happens that we get a substantial part of our profits from the building up of our foreign business—our profits which have been criticized by Government counsel. It also tends to prove the merits of the proposition. I say that in reply to the objection.

Q. Now go ahead and tell us just what you did there.—A. The salesman had been to the Central Norte Railway and made them a proposition to lubricate their railway. The oil had arrived on the ground ahead of me. As soon as I arrived I met the superintendent of motive power and the general manager and the balance of the officials, at this place of Tucuman, and explained to them thoroughly the methods of the Galena Oil Company for lubricating. They adopted those methods of packing boxes by saturating the waste the same as we do; they adopted our methods, and are using our oils to-day under contract.

Q. To the exclusion of the other oils?—A. Yes, sir.

Q. Where did you next go?—A. I think the next road I went to was in Brazil.

Q. You went from the Argentine Republic to Brazil?—A. To Brazil, yes, sir; and started in on contracts on the São Paulo Railway, and made tests of our oil on that railway.

Q. What oils were they using?—A. Lard oil.

6889 Q. And with what result?—A. With fairly good results.

Q. What was the result of your effort to get that business?—A. I did not secure it.

Q. Did you get any roads in Brazil?—A. Yes, sir.

Q. What roads?—A. Mr. Rosenthal, I do not secure the railway; that is, I do not sign the contract. Is that the way you put the question to me?

Q. What roads, as the result of your work, afterwards began taking oils from the Galena Company?—A. The Mogayana Railway was the next road after that.

Q. In Brazil?—A. Yes, sir.

Q. What oils had that road been using? —A. I don't know, but I know that they were using grease in passenger car boxes.

Q. How much of a road was that?—A. It is a road running into the interior of Brazil, and probably had 130 or 140 locomotives.

Q. Did you introduce Galena oils there?—A. I did, and Galena Oil methods, having them pull the grease out of the boxes and put in Galena car oil on their passenger trains.

Q. With whom did you take that up?—A. From the general manager to the foreman—and to the man who actually put the oils in.

Q. And did they afterwards contract for the Galena-Signal oils?—A. Yes, sir.

Q. What other countries in South America did you visit?—A. Peru.

Q. Did you secure any business there?—A. We have business there; but not particularly through my efforts.

6890 Q. Been secured since you left?—A. No, sir. We had part of the business during my time there, but I looked after the roads in a general way. We had men to do the actual riding of locomotives later on.

Q. Before you came?—A. No, sir.

Q. At the time you first visited Peru was there then any business done by the Galena-Signal Oil Company, in Peru?—A. No, sir.

Q. Is there any being done there now?—A. Yes, sir.

Q. How extensively?—A. The Central Railways of Peru are using Galena oils, and the Southern Railways of Peru are using Galena oils, and possibly others that I don't know of.

Q. Do you know when those oils were introduced in Peru?—A. About 1899, I think.

Q. Did the Galena have experts there?—A. Yes.

Q. And how about your having experts in Chile, in the Argentine Republic, and in Brazil, after you had accomplished the work of institution?—A. To look after the saving and get the economical uses of oil.

Q. What I mean to say is, were there experts that followed you?—A. Yes, sir.

Q. And are they there now?—A. Yes, sir.

Q. Do these experts operate on the same general lines as the Galena experts in the United States?—A. Yes, sir.

Q. How extensive are those roads in Peru whose business you secured?—A. The Central Railway of Peru is a road that runs
6891 from sea level to an elevation of 15,600 feet. I should judge it is 150 or 160 miles long; there are probably 50 or 60 locomotives on it at the present time. The grades are very heavy. At the time I was there, with the power that they had, they were pulling on an average four cars per train. The Southern Railway of Peru is a road that is much longer.

Q. What other South American country did you then go to, after having instituted Galena oils in Peru?—A. Back to Chile, if I remember. Yes.

Q. For what purpose?—A. To look over the work on the Antofagasta Railway and see how the expert was getting on.

Q. And then what did you do?—A. From there I went to Santiago, Chile, and inquired about how Galena oils were getting on—what they had there.

Q. And then what?—A. From there I went to the Argentine Republic; went up to the Central Norte Railway.

Q. That is, you went back over your original route?—A. Over my original route; yes, sir.

Q. For the purpose of supervising the work which you had begun?—A. Yes, sir; with the experts, and also making acquaintances with railway men and railway officials in each country as I went through it.

Q. What other South American countries, if any, did you visit besides Chile, the Argentine Republic, Brazil, and Peru?—A. Bolivia.

Q. Did you do any business in Bolivia?—A. The Antofagasta Railway runs into Bolivia; part of its line is in Bolivia. It runs from Antofagasta, in Chile, to Ollagua, Bolivia, to Oruro, in Bolivia.

6892 Q. Did you put in Galena oils on any other road in Bolivia?—A. No, sir.

Q. Are there any other South American countries where Galena oil is used?—A. I do not know of any.

Q. Are there any other South American countries where there are railroads?—A. Very small ones. There are railroads in Ecuador, whose business we did not solicit, for the simple reason that they were very poor pay.

Q. Do you know what percentage of the railroad mileage the Galena Oil Company lubricates in South America?—A. I can not give you the exact figures. I can secure them for you, Mr. Rosenthal.

Q. Can you give it to me approximately?—A. I should say at least 75 per cent of the mileage of South America.

Q. Isn't it between 90 and 95 per cent?—A. I don't know.

Q. You can get that exact figure——A. I can get the exact figure.

Q. And give it to me before you leave the stand, perhaps. How many years did you spend in South America, building up the business

of the Galena Oil Company?—A. About six and a half or seven years.

Q. Was that a profitable business for the company?—A. Yes, sir.

Q. Very, is it not?—A. Yes, sir.

Q. And were the Galena oils used on these South American
6893 roads, during the years that you were, to the absolute entire satisfaction of these railroads?—A. Yes, sir.

Q. About what year did you leave South America?—A. In 1905, I think.

Q. Did you leave any experts behind you?—A. Yes, sir.

Q. And they are there now?—A. Yes, sir.

Q. Where did you go from South America?—A. To Europe.

Q. In what capacity?—A. As manager of the expert department of the Galena Oil Company.

Q. What country in Europe did you first go to?—A. France.

Q. Were Galena oils being used on the railroads of France when you got there?—A. Yes, sir.

Q. On what roads?—A. On the Etat and the P. L. & M., I think. I can not give the exact name; but the Etat, which is the State Railways.

Q. And what was the other roads besides the Etat?—A. The P. L. M.; Paris, Lyons & Mediterranean. Now, that is as close as my memory serves me.

Q. Are all of the railroads in France governmental railroads?—A. The Etat is a governmental railway, as I understand it. I will have to explain the way I understand it.

Q. Certainly.—A. It was built by the Government, they guaranteeing 3 per cent on the bonds.

Q. I don't care for those details.—A. Well, it is leased to another corporation, and the Government guarantees the interest on the bonds.

Q. And the P. L. & M.?—A. I think it was on the same basis.

Q. There is very close supervision exercised by the Govern-
6894 ment of France over the conduct and management of those roads, is there not?—A. Yes, sir.

Q. Were Galena oils being used on both of those lines of road when you first visited France?—A. I won't be sure of the P., L. & M., but I am of the Etat.

Q. Where does the Etat Railway run?—A. It runs from Paris to Havre and to other points in France. I can not give you the names of all the places.

Q. Is it a large system?—A. Very large.

Q. Have you any idea of its mileage?—A. I have not.

Q. Of the number of locomotives?—A. I have not.

Q. Can you approximate them?—A. The locomotives I can approximate; I should say six or seven hundred.

Q. And what about the size of the P., L. & M. system?—A. It, I think, is a little smaller.

Q. And runs from Paris to Lyons and Marseille and along the Mediterranean?—A. Yes, sir.

Q. That is practically from the north to the south of France?—A. Yes, sir.

Q. Did you institute Galena oils on either of those roads?—A. No, sir.

Q. Tell us just what you did when you got there.—A. We had a corps of experts who were looking after the Galena Oil's interests on the railroads where they had contracts. I consulted with them as to their methods of doing work, how they did their work,
6895 and met them at my office in Paris. I did not go out over the lines with them.

Q. Were these experts working along the same lines as the experts in this country?—A. Yes, sir.

Q. To what extent, if at all, were your experts there receiving the cooperation of the French railroads?—A. Very good, I should think; very good.

Q. Does the Galena still continue the lubrication of those two roads in France?—A. I think so.

Q. Under a contract?—A. I think so.

Q. Do you lubricate any of the other railroads of France?—A. Not that I know of. We lubricate railways in Algiers, which are a part of the same system.

Q. Were you in Algiers?—A. No, sir.

Q. The Algerian railroads are owned by these French roads?—A. Yes, sir.

Q. And as part of their system you lubricate those roads?—A. Yes, sir.

Q. And along the same lines, using the same methods?—A. Yes, sir.

Q. How extensive are those roads in Algiers, do you know?—A. No, I do not.

Q. How long were you in France, supervising the work of your experts there?—A. I made my headquarters in France, and was there continually; had an office in Paris, France, from the time I went there until I came to America.

Q. How long were you in Europe as manager of the Galena experts?—About eighteen months.

6896 Q. In what European countries besides France does the Galena company lubricate railroads?—A. At my time we had railroads in Great Britain, in Denmark——

Q. Let's take up these countries one at a time, please. What roads during your time, in Europe, did the Galena company lubricate in Great Britain?—A. The London, Brighton & South Coast was one road; another road, I can not remember the name of it, but I remember the name of the superintendent of motive power.

Q. Do you remember where the road operated?—A. It operated out of London; but I did not ride over the road.

Q. What other roads?—A. The Metropolitan Railway.

Q. Of Great Britain?—A. Of Great Britain. We had a contract with them at that time.

Q. Did that also operate out of London?—A. Yes, sir.

Q. What other roads?—A. I don't remember any other road.

Q. Did any of those roads run into Scotland?—A. Not that I remember of.

Q. Can you give us some idea of the size of those railroad systems in Great Britain?—A. Why, this road, the name of which I can not mention, I should think had in the neighborhood of five hundred locomotives.

Q. And the Brighton road?—A. That was a smaller road.

Q. Were those contracts in operation when you got there, or did you secure any of them?—A. They were in operation.

6897 Q. What did you do in reference to the use of Galena oils on those roads?—A. Consulted with the experts who looked after the road.

Q. And were your experts on those roads of Great Britain the same character of experts as you had in America?—A. Yes, sir.

Q. Doing the same general class of work?—A. Yes, sir.

Q. Did you attempt to secure any additional business in Great Britain while you were there?—A. I looked after or arranged for the experts on a trial on the Northeastern Railway.

Q. And when did you return from Europe?—A. Eighteen months ago.

Q. Do you lubricate any roads in Ireland?—A. I think so, or did in my time.

Q. Do you remember what roads?—A. No, sir; I do not.

Q. In Spain?—A. Previous to my going to Europe we had a contract with the Northern Railway of Spain.

Q. Is that a state road?—A. Yes. It was given up, though, just about the time that I arrived there.

Q. Have you now any roads that you lubricate in Spain?—A. When I left there we had two or three small roads.

Q. Did you have any expert service employed on those roads?—A. Yes, sir.

Q. Any in Portugal?—A. No, sir.

Q. In Italy?—A. Yes, sir.

Q. What roads?—A. The Mediterranean is one road—one of the biggest roads there.

6898 Q. One of the largest roads in Italy?—A. Yes, sir.

Q. What other roads in Italy besides the Mediterrane?—A. I can not give you the names of them.

Q. Are there others?—A. Yes, sir.

Q. Do you remember how many others?—A. I should say five or six.

Q. Do you have pretty much all of the railroads of Italy?—A. No, sir.

Q. Are those roads lubricated in the same way that the American roads are?—A. Not in all cases.

Q. I mean in regard to the employment of expert service.—A. Yes, sir.

Q. And you attempt to introduce what we have designated as Galena methods?—A. Yes, sir.

Q. In the lubrication of those roads?—A. Yes, sir.

Q. Are those Italian roads Government roads or are they private roads?—A. I think the Government has taken them over lately.

Q. And you still continue to lubricate them?—A. I couldn't say; I don't know.

Q. That is, you don't know what has happened during the past eighteen months since you left there?—A. No, sir.

Q. Did you have any roads in Switzerland?—A. Yes, sir.

Q. What roads?—A. Well, the Tuhnersee Bahn and the Gothard, and other roads.

Q. The Gothard road is the road running from Italy through the St. Gothard tunnel in Switzerland, is it?—A. Yes, sir.

6899 Q. Perhaps one of the most difficult pieces of railroading in the world, isn't it?—A. Yes, sir; I suppose so.

Q. And that road you lubricated?—A. Yes, sir.

Q. Do you know the extent of the other road?—A. There were several. I can't give you the names of them offhand.

Q. All of the railroads of Switzerland are owned by the Government and operated by the Government, are they not?—A. I will not be sure on that.

Q. Do you know that some of them are?—A. No, I do not.

Q. Did you employ your expert service in Switzerland also?—A. Yes, sir.

Q. Did you institute that service during the time that you were there, or was it in operation when you came there?—A. It was in operation when I came there.

Q. How about Sweden?—A. We had several roads in Sweden.

Q. These Galena experts on the European and South American roads were experts that were sent from this country, were they not, to most of those countries?—A. Not all of them. Part of them.

Q. The first ones were?—A. The first ones were, yes, sir.

Q. And through those first ones that went there others were educated and employed?—A. Yes, sir.

Q. I presume in your South American and European experience you found it necessary to employ experts, if possible, who were natives of those countries?—A. Not necessarily.

6900 Q. Well, you found it advantageous, did you not?—A. Not necessarily.

Q. On account of the language?—A. We found, in many cases, people who could speak the language of the country, who were not necessarily natives.

Q. I understand. I mean you found it advisable to employ experts who could speak the language of the country?—A. Yes, sir; entirely; we always did.

Q. And wherever that was possible you did so, I suppose?—A. In every country.

Q. Now, in Sweden, did you lubricate any of the roads?—A. Yes, sir.

Q. Can you give us some idea of the extent of the Galena service in Sweden?—A. I can give you this idea: that we always classed Denmark and Sweden together, and my recollection of the last time that I figured, it was forty-two railroads who were using Galena oils and they had about three hundred and fifty locomotives.

Q. That is, there were forty-two railroads in Denmark and Sweden combined?—A. That were using Galena oils.

Q. Do you happen to know whether those were state roads or private roads?—A. I think one of them was a state road.

Q. And do you know how the Galena oils were introduced on those roads?—A. On most of the roads it was introduced before I went there.

Q. So you have no personal knowledge of that?—A. No.

6901 Q. Was your expert service employed on the Sweden and Denmark roads?—A. Yes, sir.

Q. In the same way as on the other roads?—A. Yes, sir.

Q. Did you lubricate any of the railroads of Germany?—A. No, sir.

Q. Do you know whether you do now or not?—A. I do not.

Q. You have no knowledge upon that question. During your time, did you lubricate any of the roads of Holland or Belgium?—A. Yes, sir.

Q. Do you remember how extensively?—A. No, sir.

Q. You simply know that some of those roads were lubricated by the Galena?—A. Yes, sir.

Q. How about Egypt?—A. We lubricated the state railways of Egypt for quite a long time.

Q. During the entire time that you were there?—A. They used some of our oils up to the time I left there.

Q. When did you return to America?—A. In October, 1906.

Q. And in what capacity have you been employed since then?—A. Assistant manager of the expert department.

Q. In a general way, what are your duties as assistant general manager of the expert department?—A. To go over the field, over the work, with the other experts; to endeavor to be of assistance to them if I can; to see if they are looking properly after their work; and to offer, if possible, any suggestions or any recommendations to improve the uses of Galena oils.

Q. Have you supervised the work of experts particularly in any given field since you returned?—A. No, sir.

Q. Have you been working on any particular road?—A. I have ridden over their territory with several experts. I have ridden over the Northern Pacific Railway with an expert; parts of the Southern Pacific Railway; parts of the Santa Fe; parts of the Pennsylvania; parts of New York Central, Lake Shore; parts of the Boston & Maine.

Q. And the Pacifics?—Part of the Northern Pacific and part of the Southern Pacific.

6902 Q. Now, you say you have ridden over those systems or parts of them with your experts. Just what do you do when you are on those trips?—A. We go over the road, meeting the different officials of the railway that we can, from the superintendents of motive power down, discussing the question of lubrication, discussing questions of bearings or brasses, methods of feeding oil to different parts of locomotives, methods of saving oil—that is, greases—and, in general, talk on lubrication, bringing up every question that we possibly can pertaining to the successful lubrication of the railway.

Q. Successful in what way?—A. The highest possible economy with the best service.

Q. And have you had anything to do, as assistant manager of experts with the use of Galena oil for lubrication purposes on electric street railway lines?—A. Yes, sir.

Q. To what extent?—A. Visiting the power houses and the car barns and different points where work is going on, on different electric lines in the United States, New York and Brooklyn——

Q. Will you mention some of the electric street car lines that are lubricated, to your knowledge, by the Galena-Signal Oil Company, that you have had to do with?—A. The elevated railway and the subway railway in New York.

Q. That is, you mean the entire elevated railway system.—A. Yes, sir.

Q. And the subway system?—A. Yes, sir; in New York.

6903 Q. Go ahead.—A. The Brooklyn Rapid Transit Railway.

Q. What does that mean?—A. That means a n[illegible] of lines out of Brooklyn. I couldn't give you just the exact na[illegible] them. I visit their power house.

Q. Elevated and surface lines?—A. I couldn't say. The Brooklyn Rapid Transit Railway, the power-house matters particularly; I went to their power house.

Q. Do you lubricate the power houses of these electric lines you have spoken of?—A. In many cases; yes, sir.

Q. The Brooklyn Rapid Transit, among others?—A. Yes, sir.

Q. Just how extensive the Brooklyn elevated and surface system is you don't know.—A. No, sir.

Q. Give us some of the other lines you have lubricated.—A. The Philadelphia Rapid Transit Railway.

Q. What does that involve?—A. The parts that I visited are the surface lines, the car barns and shops in connection with the surface lines of Philadelphia, and also the elevated lines.

Q. Does that comprise practically the entire surface street railroad system of Philadelphia?—A. I think it does.

Q. And the elevated system?—A. Yes, sir.

Q. None of these lines are freight lines, are they?—A. No, sir. I never saw any freight cars there.

Q. You never saw them carry any Standard oil over any of those street railroads?—A. No, sir; I did not.

Q. What other street railway systems?—A. The Massachusetts—what is it called? I forget the name of the road. The Boston Elevated is one road that I remember.

Q. That is, the Boston elevated system.—A. Yes; we have
6904 that under contract.

Q. Including the subway system of Boston?—A. I think so. I have visited the lines in Los Angeles, California—the Los Angeles and Pacific Railway.

Q. The street car lines?—A. Yes, sir.

Q. The electric street car lines?—A. The electric street car lines.

Q. You visited them for what purpose?—A. To see how our expert was getting along and how our oil was getting on.

Q. Do you mean that the Galena lubricated that street railway system?—A. At that time; yes, sir.

Q. And what other street railways?—A. The Memphis Street Railway.

Q. And what others that you have visited?—A. The lines of the Illinois Traction Company, some of them.

Q. Where are they?—A. What is called the "McKinley syndicate," around about Danville, Illinois.

Q. That is, the interurban street railway lines radiating out from Danville, Illinois?—A. Yes, sir.

Q. Does the Galena lubricate that road?—A. Yes, sir.

Q. What others that you have visited?—A. One of the street car companies in Chicago; I think it was the Metropolitan; I am not sure.

Q. That is, the elevated?—A. Yes, sir.

Q. Any others that you think of?—A. No, sir.

Q. What general methods do you use in the lubrication of
6905 these street railroads so far as expert service, for example, is concerned?—A. We use the same methods regarding the journal boxes, as far as possible.

Q. I mean, in the first instance, do you employ expert service?—A. Yes, sir.

Q. Who operate in the same way as your railroad experts?—A. Yes, sir.

Q. Do you know whether or not those street car systems that you speak of are lubricated under contract?—A. Many of them are; yes, sir.

Q. Do you think of any other street railroads?—A. Not at the present moment.

Q. Do you know whether, generally speaking, these contracts for street railway lubrication are under the same form of guaranty contracts as the steam roads—the same general form?—A. Yes, sir.

Q. That is, when you say, "Yes, sir," do you mean that they are?—A. I mean that they are under the form that the Galena-Signal Oil

Company guarantees to lubricate the street railways at a certain price—that is, not to exceed a certain price.

Q. That is, not to exceed a certain price per unit of service?—A. Per unit of service.

Q. Do you lubricate also the Pittsburg street railway system?—A. Yes, sir.

Q. Now, not any of these electric roads that you have mentioned are freight-carrying roads, are they?—A. Not that I know of.

6906 Q. I don't suppose you know whether any of the so-called Standard Oil men are directors or officers of those street railroads?—A. No, sir; I do not know.

Q. What is the objection to the use of tallow as a lubricant?—A. Tallow as a lubricant has acid in it and will eat out cast iron.

Q. And was that extensively used on these various systems before you introduced the use of Galena oils?—A. On the Antofogasta Railway, of Chili, is the only one that I remember of.

Q. Now, you have been in the railroad service how many years?—A. From 1883 to 1898, with the exception of one year.

Q. What was the method of packing journal boxes when you first began your railroad service?—A. Taking a bucket and putting in a certain amount of waste and pouring as much oil on it as you possibly could, or filling up the bucket with oil, working the waste over with your hands to get the oil into the waste, putting it into the car box, and shoving it in about as tight as you possibly could and filling up the box completely.

Q. And when was that method changed?—A. The first time that I saw the method changed was, I think, about 1887.

Q. Under what circumstances?—A. Under the Mexican Central Railroad, taking our Galena oil.

Q. And what was the change that was introduced there and then?—A. Why, in 1887, the expert told us that we didn't need to put in as much oil and not put in quite so much waste

6907 in the box.

Q. I wish you would trace the changes that have been going on since then and tell us how they were brought about in so far as the packing of the boxes is concerned.—A. I can only give you my personal experience regarding that. The first expert that I met of the Galena Oil Company I was a master mechanic on a railway.

Q. You were then, in 1887, the master mechanic of that Mexican road?—A. Of one of the divisions of the Mexican Central Railway.

Q. And at that time they were using this old method of packing?—A. Yes, sir.

Q. And then the Galena expert came along and introduced the new method?—A. No; he introduced this method.

Q. What method?—A. We mixed the oil in the bucket with the waste, the same as previously, but didn't put in quite so much oil and didn't put in as much packing in the box as we had previously, and then poured a little bit of oil alongside of the journal. I fol-

lowed that practice for some years, and I think in 1894 the next expert that I met was while I was on the Interoceanic Railway.

Q. What was the effect, first, of that first change?—A. The effect of that first change was that we did not use as much oil, and we got better lubrication.

Q. That is, fewer hot boxes?—A. Fewer hot boxes.

Q. What was the next change that came under your personal observation?—A. The next change that came under my personal
6908 observation was on the Interoceanic Railway, when the Galena expert came along and told me of the method of soaking waste in oil and allowing the excess of oil to drain out.

Q. What was your position on the Interoceanic road at that time?—A. Superintendent of motive power.

Q. And as the superintendent of motive power of that Mexican road you had general supervision of the subject-matter of lubrication?—A. Yes, sir.

Q. Now, what did the Galena expert educate you on, in 1894?—A. On the method of soaking waste for at least forty-eight hours and allowing the surplus oil to drain out.

Q. What had you been doing theretofore in that regard?—A. Had been using a bucket and letting the men draw the free oil and mixing the oil and waste together to suit themselves.

Q. Thereafter you soaked the waste forty-eight hours?—A. Yes, sir.

Q. And then, before putting it into the journal box, permitted the oil to drip back into the oil reservoir?—A. Yes, sir.

Q. What was the result of that?—A. That resulted in a saving of the oil because the waste didn't have more oil than it could hold in the journal box.

Q. That, then, resulted in a more economical use of oil?—A. Yes, sir.

Q. And what was the effect of that upon the waste in so far as the quantity of waste used was concerned, any?—A. No, sir.

Q. How about that change so far as efficiency of lubrica-
6909 tion was concerned?—A. In connection with the soaking of the waste the method of packing the boxes was given to me at the same time, which added a great deal to the efficiency.

Q. How had they been packed theretofore?—A. Very tight: no dust guard put in; that is, no coil of waste put in back against the dust guard to keep the oil from coming out.

Q. You say they had been packed very tight?—A. Yes, sir.

Q. And how about their packing with reference to the center line of the journal?—A. We packed it almost full.

Q. The old method?—A. The old method; yes, sir.

Q. That is, on top of the bearing as well as on the side?—A. No; on the sides.

Q. Now, what did this new method do?—A. This new method taught us to pack the boxes just below the center line of the journal. Well, I will start in first. Take the waste and roll it up into the

form of a rope, big enough so it would just go in the box, shove it back to the back end of the box, forming a dust guard; in addition to the regular dust guard this formed a dust guard.

Q. Who taught you to do that?—A. The Galena oil expert. The waste then was put into the box, in chunks, took it out in handfuls some times, or with a packing iron, and passed it through loosely underneath the journal, and packed it gradually up to about the center line until we came to the end of the journal.

6910 Then, at the end of the journal, we put our waste or packing underneath, carefully, and at the outside of the space between the end of the journal and the outside end of the box we filled up with what we call the plug; it was simply a bunch of waste with the oil pressed out of it, shoved down in there. The object of that was to keep out the dust and keep the balance of the waste in place.

Q. And who taught you how to do that?—A. The Galena oil expert.

Q. What was the effect of that change in the method of packing upon the efficiency of the lubrication and the economy of it?—A. We had fewer hot boxes and we saved oil.

Q. Now, under the old method of packing, why was it that you got so many hot boxes?—A. There are several reasons. One is that in filling a box very full of waste you get the waste up against the journal and up against the edge of the brass. The journal in revolving will take hold of a piece of waste and carry it underneath the brass and on the journal, and will become as hard as a piece of carbon and will start a hot box because the pressure will grind up the waste. Another reason is that you pack the box so full and so tight that the waste up next to the journal will glaze over and will not feed through the waste to the journal.

Q. And in the revolution of the bearing it will wipe the oil off of the journal?—A. Yes, sir.

6911 Q. And the result would be what?—A. A hot box.

Q. The wiping of the oil off of the journal would keep it from acting as a separator, would it not?—A. Yes, sir.

Q. Between the bearing part of the journal and the brass?—A. Yes, sir.

Q. That is, it takes away the film of oil?—A. Yes, sir.

Q. With the result that you get a hot box?—A. With the result that you get the two bearing surfaces together.

Q. Without the film?—A. Without the film.

Q. And with the ultimate result of getting a hot box?—A. Yes, sir.

Q. So that very simple improvement in the way of packing introduced by the Galena experts was a most important element resulting in the elimination of hot boxes?—A. Yes, sir.

Q. And in the more economical use of oil?—A. Yes, sir.

Q. What about the quality of Galena oils for lubricating purposes as compared with the quality of oils that had theretofore been used

on these roads with which you were connected?—A. I think they were better.

Q. A saving of hot boxes means a saving in what other direction?—A. It means a saving in loss of life and damage to property, delays of trains, a saving in wages for repairs, a saving in the amount of brasses used and journals used, a saving in the amount of waste, and a saving in the amount of oil.

Q. And any saving in the amount of coal consumed?—A. Yes, sir.

6912 Cross-examination by Mr. KELLOGG:

Q. You mentioned a number of street railways that the Galena Signal Company lubricates, and I believe in answer to Mr. Rosenthal you said you didn't know whether any of them had Standard Oil directors or not. That is correct, is it?—A. Yes; I don't know that any of the street railway companies have Standard Oil directors.

Q. You do know that they do not lubricate 15 per cent of the street railways in the United States, don't you?—A. No, I do not know that.

Q. You don't know anything about that?—A. I know that we have a number of street railways under contract.

Q. And you know there are a great number that you haven't got?—A. Yes, sir.

Q. And you know the number you haven't got far exceeds those you have got?—A. I suppose so.

Q. Did you hear Mr. Steinbrenner's testimony?—A. I did not.

Q. That you didn't have 25 per cent of the street railways?—A. I did not.

Mr. ROSENTHAL. I submit that isn't his testimony.

Q. Well, I will read it.

"Q. Have you 50 per cent of the street railways?—A. Not yet.

"Q. Have you 25 per cent of them?—A. No.

"Q. Have you 15 per cent of them?"

He didn't answer that. He said, "But we expect 100 per cent."

"Q. You do?—A. Yes."

6913 Now, do you know that you have 15 per cent of the street railways?—A. I do not.

Mr. CRAWFORD. We have about 40.

Mr. KELLOGG. You can testify if you want to.

Mr. CRAWFORD. We will prove it.

Q. Have you the Los Angeles Street Railway?—A. I wouldn't be sure.

Q. You don't know?—A. I do not.

Q. You used to have it?—A. I don't know that.

Q. I thought you said you visited the street railway in Los Angeles to see how your experts were getting on?—A. I did; I went there with our expert, Mr. Wright.

Q. You don't know whether they were lubricating that railway or not?—A. At that time I think they were.

Q. What is your opinion now?—A. I don't know now.

Q. What is your opinion about their lubricating it all the time since you were there?—A. I don't know. I haven't been there since last November.

Q. What percentage of the railways have you got of Great Britain, Ireland, and Scotland?—A. I don't know.

Q. You mentioned two railways that you have there?—A. Yes, I said we had during my time.

Q. Your time was when?—A. Eighteen months ago.

Q. Do you know of any railways you have got since them?—A. I don't know.

Q. You mentioned the London, Brighton & South Coast?—A. Yes.

6914 Q. That is a small railroad, isn't it?—A. Yes.

Q. When you speak of the number of locomotives, of course, those locomotives are very much smaller than ours?—A. Yes.

Q. And their cars are much smaller?—A. Not always; as an average, yes.

Q. You know of very few English railways that run big cars?—A. No.

Q. Most of them are five and ten ton cars, aren't they?—A. The majority of them, the freight cars.

Q. They carry five or ten tons of freight?—A. Yes.

Q. And the locomotives are small locomotives?—A. Well, they have some large ones, naturally.

Q. Now, you mentioned only three railways in the United Kingdom. What is the mileage of those three railways?—A. I couldn't tell you; I don't know.

Q. You know something about the mileage of the railroads in Great Britain, don't you?—A. I do not.

Q. You know you didn't have five per cent of the mileage, don't you?—A. Yes.

Q. Did you have two per cent of the mileage?—A. I don't know.

Q. What is your opinion?—A. I don't think we did.

Q. And you haven't now, that you know of?—A. I don't know.

Q. The English railways run fast trains, don't they?—A. Very.

Q. Faster than the American, on the average?—A. I don't think so.

6915 Q. All of their passenger trains will average faster than the American trains, won't they?—A. No, sir.

Q. They are very fast trains, many of them?—A. Yes, sir.

Q. Now, in France, you mentioned three railways, I believe, or two; which was it?—A. Two.

Q. They have the English system, that is, the English style of coaches and freight cars and engines, haven't they?—A. Not entirely in the coach line.

Q. Most of their engines are small engines?—A. No, they are getting large engines now.

Q. Most of their passenger cars are the small English coach?—A. The majority, I suppose, would be, but they are introducing large ones all the time.

Q. There are very few of them, aren't there?—A. No, quite a number.

Q. What is the percentage of the large cars on the French railways?—A. Oh, I should say two per cent.

Q. All those fast trains—the fast train from Paris to Rome, runs the English small coach, doesn't it?—A. No, I don't think so.

Q. Their sleeping cars are the English sleeping cars, aren't they?—A. I think not. They don't own any English sleeping cars.

Q. Are there no sleeping cars running from Paris to Rome?—A. Yes, sir.

Q. And they run on that train?—A. Yes, sir.

Q. And they run on the French railway?—A. Yes, sir.

6916 Q. What percentage have you got of the French railways?—A. I don't know.

Q. Have you got ten per cent of the mileage of the French railways?—A. I think we have.

Q. Twelve per cent?—A. I couldn't give it to you exactly; I don't know. I can get you the figures.

Q. Can you get me the exact figures?—A. I can get you the figures.

Q. Will you do so?—A. Yes, sir.

Q. Give us your best opinion about it now, as to the percentage that you have got of the French railways.

Mr. ROSENTHAL. If he has any opinion at all.

A. I haven't any opinion right at the present moment.

Q. It is a small percentage, isn't it?—A. It is a large percentage.

Q. What do you call a large percentage?—A. I call a large percentage 25 per cent.

Q. Do you think you have got 25 per cent of the French railways?—A. I think so.

Q. You will get us the figures, will you, of mileage?—A. I will do so, yes, sir.

Q. Can you get the locomotive, passenger, and freight car mileage of the French railroads, of those that you sell?—A. I think so.

Q. Do you lubricate any railways in Germany?—A. No, sir, not that I know of.

6917 Q. That must be a benighted country! In Denmark and Sweden you lubricate 42 railways, you say, the 42 having about 350 locomotives?—A. Yes, sir; I said we did at my time, eighteen months ago.

Q. I will assume you are doing as much now as you did then. Pretty small railways, aren't they?—A. Yes, sir.

Q. What kind of locomotives do they have—the small English locomotive?—A. More or less. They have some few American locomotives, of the American type.

Q. The great percentage of them is the English style of locomotive?—A. Yes, sir.

Q. What percentage of the railways in Denmark and Sweden and Norway have you?—A. I don't know.

Q. Very small, isn't it?—A. Forty-two railways and 350 locomotives in Denmark and Sweden would give more or less the percentage.

Q. In Norway, Denmark, and Sweden, you said?—A. I said Sweden and Denmark.

Q. Do you lubricate any in Norway?—A. I don't know.

Q. What percentage have you in Sweden and Denmark?—A. I don't know at the present moment. If I knew the number of locomotives of the two countries I could give you the percentage.

Q. You have some idea, haven't you, whether it is a small percentage or a large percentage?—A. It is a large percentage; it was eighteen months ago.

Q. What do you call a large percentage?—A. I call 25 per cent a large percentage.

6918 Q. Can you get me the figures?—A. I think I can.

Q. Have you the percentage, or the statistics?—A. I think I have.

Q. Have you ten per cent in Denmark and Sweden?—A. I think we have more than that, or did have eighteen months ago.

Q. Get me the figures, will you, please?—A. I will try to.

Q. Do you know what percentage you have got in Switzerland?—A. No, sir; I do not.

Q. Can you give us any idea?—A. If you will let me guess at it I can guess pretty nearly.

Q. You know something about the number of railways in Switzerland?—A. I couldn't give you the names of the railways in Switzerland; no, sir.

Q. It is a pretty large mileage for a little mountainous country, isn't it?—A. There is a pretty good mileage there, but so many little roads that I can't remember them.

Q. Your mileage in Switzerland, would you say it was 20 per cent?—A. Yes.

Q. You should think it was?—A. It was eighteen months ago; I should think it was 20 per cent.

Q. Will you get that for me?—A. I will try to.

Q. What percentage of the Italian railways have you for lubrication?—A. Oh, I should judge, during my time, as nearly as I can guess, about ten per cent, at the time I left there.

Q. They use very largely the English style of locomotives
6919 and cars?—A. Yes.

Q. Most of these European countries use what I call the English style of locomotives and cars, don't they?—A. You mean the small car, with the side door, and everything of that kind?

Q. Yes; and the small freight car and the small engine.—A. They are going in for larger cars all the time. The new cars that are being built are what they call their corridor cars.

Q. But they are small as compared with our big Pullman sleeper and our big freight car?—A. Their modern car is about the same as our modern car.

Q. Don't you know there is scarcely a tunnel in Europe that will take a Pullman sleeper through it?—A. Oh, yes.

Q. Is there one in England?—A. I don't know, but I have ridden in a Pullman car in Italy.

Q. Yes, so have I—about as wide as this table or a little wider. You have ridden on the train from Rome to Naples?—A. Yes.

Q. And they have a Pullman car on there?—A. There is one Pullman car that I have seen.

Q. And it is a dinky car, not nearly as big as ours.—A. It is an old Pullman car.

Q. Built especially for that railway, wasn't it?—A. No; a sample car built by the Pullman Company.

Q. You couldn't run it on an American railway, could you?—A. I don't think the people would stand for it; no, sir.

6920 Q. What percentage of railways have you got in Spain?—A. Oh, it is less than one per cent, I suppose.

Q. Well, we will pass over that; it isn't worth noticing.

Mr. ROSENTHAL. There is a question I forgot to ask you. Let me ask it now, Mr. Kellogg. Do you know how long the Galena Company has been building up the European business?

WITNESS. The first I knew of it was when I went with them in 1898. They have been working on it since 1898 that I know of; previous to that time I don't know.

Mr. ROSENTHAL For about ten years they have been trying to build up that business?

WITNESS. Yes. They had been working on it before that time. They had men in Great Britain and different parts of Europe before I knew anything about it.

Q. Now, in Holland and Belgium, what percentage of the railways have you got?—A. That we did have?

Q. Yes.—A. Very small.

Q. What do you call "very small?"—A. Oh, I should call one or two per cent small.

Q. That was eighteen months ago?—A. Yes, sir.

Q. Now, in Egypt. You said the State railways of Egypt used some of your oils up to the time you left there?—A. Yes, sir.

Q. Do you know what percentage of the Egyptian railways used your oil?—A. They did up to eighteen months ago.

Q All of them?—A. No, sir.

Q. What percentage of the railway mileage in Egypt——

6921 A. Used our oil eighteen months ago? I should say 50 per cent.

Q. Fifty per cent?—A. I should say so.

Q. They used some of your oil?—A. Used all of our oils up to about two years ago.

Q. And did they quit?—A. They quit some of our oils; yes, sir.

Q. So that on this 50 per cent of the Egyptian railways they are not using your oils exclusively?—A. At the present time?

Q. Yes.—A. No, sir. That is, I don't know at the present time.

Q. They weren't when you left?—A. No, sir.

Q. What oils did they cease using?—A. They ceased using, during my time there, the engine oil, I believe it was—car oil.

Q. Car oil?—A. Engine and car oil.

Q. Engine and car oil?—A. Yes; part of it.

Q. Is that the principal oil for the lubrication of railways—the principal part of it?—A. Why, no; the valve oil also is used.

Q. Is the engine and car oil the larger part?—A. No; I think the valve oil is the larger part. I think the valve oil would be larger.

Q. They still use that, do they?—A. They did when I left there.

Q. Where did they buy their engine and car oil?—A. Afterwards?

6922 Q. Yes.—A. From a Russian outfit.

Q. From Russia. Have you got the figures so you can give us the statistics on Egyptian oil?—A. No; I couldn't, because that wasn't a road under contract. They bought our oil outright and I did not keep the mileage.

Q. Have you any business at all in the Russian Empire?—A. Not that I know of.

Q. Do you know of any other country in which you lubricate railways?—A. I think in Japan.

Q. And what percentage of the Japanese railways?—A. I don't know anything about it.

Q. Any other country that you know of?—A. I wouldn't be sure whether we do in China or not; I don't know.

Q. You don't know how many railways in Japan you do lubricate, or what the extent of the business is?—A. No, sir.

Mr. ROSENTHAL. I will cover the Asiatic business by some other witness.

Q. Where do the English railways buy their lubricants, do you know?—A. I know that they buy a great deal from Russia.

Q. They buy a great deal from America, too, don't they?—A. I suppose so.

Q. The Union Petroleum of Philadelphia sell a great deal there, don't they?—A. I don't know.

Q. But you do know they ship a great deal from this country?—A. I do not.

Q. You don't know?—A. No.

Q. How do you know they buy from Russia?—A. Because

6923 I have had railroad men tell me that it was Russian oil.

Q. You have heard them tell you of American oils, too, haven't you?—A. Yes; but they haven't mentioned the names of anybody; I don't know who it is.

Q. Do you know where the German railroads buy theirs?—A. No; I do not. I know that they have bought some vacuum oil.

Q. Some vacuum oil?—A. Yes; vacuum valve oil.

Q. They bought a great deal from the Pure Oil Company, too?—A. I don't know that.

Q. Now, you say you think you have about seventy-five per cent of the South American railways?—A. Yes, sir.

Q. And the first railroad, I believe, that you said you lubricated was using lard oil for machinery and tallow for the cylinders?—A. Yes, sir.

Q. That was in 1898?—A. Yes, sir.

Q. At that time the best American and European railways were not using any such thing, were they?—A. No; not to my knowledge.

Q. Your best opinion is that they were not?—A. Yes, sir.

Q. And it had been demonstrated it was not the best lubricant?—A. Yes, sir.

Q. They were rather behind the times, weren't they?—A. Yes.

Q. And what were the other South American countries using?—A. In Chile they were using all kinds of oil—or in the southern
6924 part of Chile they were using all sorts of oils, buying American oils and buying Russian oils.

Q. Now, take the State railways that you say you got. They were buying American oils?—A. Not entirely. They were buying in the open market.

Q. Well, they were buying some American oils?—A. Yes, sir.

Q. You said they were buying of Fisk Brothers?—A. Yes.

Q. Of Thompson & Bedford?—A. Yes, sir.

Q. And Borne-Scrymser Company?—A. Yes.

Q. Thompson & Bedford and Borne-Scrymser Company were Standard Oil Company concerns, weren't they?—A. I don't know that.

Q. You have heard that, haven't you?—A. Yes.

Q. You believe them to be, don't you?—A. Yes, sir.

Q. Now, the State railways still buy of Fisk Brothers, don't they?—A. They were up to the time this contract was signed.

Q. Still buying?—A. I suppose so.

Q. When was this contract signed?—A. I couldn't give you the date. The contract was to start in in April, I think.

Q. This year?—A. Yes, sir.

Q. Most of these South American railways were what you would call rather behind the times as compared with the American and European railways?—A. No, sir.

Q. They were not?—A. No, sir.

Q. They were right up-to-date?—A. Yes, sir.

Q. Except that one?—A. I won't say all of them: no. But the best railway I ever saw is in South America.

6925 Q. But the most of them were, evidently, not up-to-date?—A. No; they have tried to keep up to the times, with the exception of their lubrication.

Q. South American railways—when you speak of railways of 500 locomotives and 350 locomotives and 50 and 60 locomotives, what

kind of locomotives were they?—A. On the west coast of South America the majority of them are American locomotives.

Q. Heavy, large locomotives?—A. Yes; and they have gone on and increased with the times.

Q. How about the eastern coast?—A. The eastern coast—in Brazil they use a number of American locomotives; in the Argentine Republic they only use a very few American locomotives.

Q. And the rest use what?—A. English, Belgian, French, and German.

Q. And they are all of the general type, aren't they—the English, Belgian, and French?—A. No; they are increasing the size of their locomotives continually.

Q. They are very much smaller than our big freight and passenger locomotives, aren't they?—A. In weight?

Q. Yes.—A. The newer ones are coming about to our weight.

Q. They have new ones and old ones?—A. They are buying locomotives all the time.

Q. I presume that is so. They have a good many of the old, small locomotives, don't they—A. Yes, sir.

Q. You have charge, you say, of the experts of the Galena-
6926 Signal Oil Company?—A. I am assistant manager of the expert department.

Q. Who is the manager?—A. A man named J. S. Coffin.

Q. It appears by the testimony you have about how many men—49, is it?—A. I should say about 50 or 60; I am not certain.

Q. You lubricate about how many railways in this country?—A. About 97 per cent of them, so I have been informed.

Q. You have something like 300 railway contracts, haven't you?—A. I should think all of that.

Q. These men travel over the various roads?—A. Yes, sir.

Q. On passes?—A. Yes, sir.

Q. They also solicit some business, don't they?—A. No, sir.

Q. None whatever?—A. I don't think so.

Q. Can you give us the names of those men?—A. I could give you the names of a number of them; yes.

Q. Can you give us a list of all of them?—A. Yes, sir.

Q. Will you please furnish it?—A. Yes, sir.

Q. You say none of them solicit any business?—A. Not that I know of. If business comes to them without solicitation, they take it, but they haven't any instructions, that I know of, from the expert department to solicit business.

Q. Do you know that they do not do it?—A. I do not.

Q. Don't you know, as a matter of fact, that they do get business?—A. I do not know it, as a matter of fact, that they do get business; I don't know of a case.

6927 Q. Have you heard that they do?—A. No.

Q. You haven't heard that?—A. No; I have not.

Q. Haven't heard anything about it?—A. I have not.

Q. If Mr. Steinbrenner said they did you would believe it, wouldn't you?—A. Yes; I would.

Mr. ROSENTHAL. And if he said they didn't, you would believe it?

WITNESS. I would.

Q. Now, you say that if the business comes to them, they take it?—A. They notify the Galena Oil Company, or their superior officer, of the fact that somebody wants to buy Galena oil, as I understand it.

Q. Now, that is done occasionally, isn't it?—A. I suppose it is; yes.

Q. You don't know that they do not talk with railroads and people about buying their oils?—A. I know that they don't go outside of their own lines because they are not looking for work.

Q. Then, the result of that is that if somebody comes to them and tells them they want to buy the Galena-Signal oil, they notify the sales department?—A. Yes.

Q. They are knocking around among the railroads all the time?—A. Yes, sir.

Q. Which are your chief customers?—A. Yes, sir.

Q. And they keep track of those roads that are buying Galena oil, and those that don't?—A. Keep track of those that are buy-

6928 ing Galena oils; yes, sir.

Q. And they would know whether the roads were using any oil other than Galena, wouldn't they? Be pretty apt to know it?—A. They would be apt to know it, yes, sir.

Q. Now, how many years have those men travelled on passes over the roads?—A. I suppose ever since the Galena Oil Company started the business of contracting.

Q. That saves a big item of expense, doesn't it?—A. Yes, sir.

Q. Do you also have passes on all the railroads?—A. No, sir.

Q. Did you ever have?—A. No, sir.

Q. Never had a pass on a railroad?—A. No, sir.

Q. On any of them?—A. No, sir.

Q. Never had a pass on a railroad?—A. Yes, sir.

Q. Since you have been with the Galena-Signal Oil Company?—A. Yes, sir.

Q. I misunderstood you, then. You didn't travel on it, you mean?—A. Yes, sir. When I came up from Mexico, in 1889, I think it was, I had a pass from El Paso to Chicago, I think.

Q. You never have had one since?—A. No, sir.

Q. You never have travelled on a trip pass, or otherwise?—A. Yes, sir, I have; I have had a trip pass.

Q. You have had trip passes; a good many?—A. No, sir, only one.

Q. When?—A. Last November.

Q. Over what line or road?—A. Over the Salt Lake road.

Q. You don't spend your time travelling, I suppose?—A. Yes, sir, I am on the road all the time.

6929 Q. Have you an office in Franklin?—A. Why, I have a desk in Franklin.

Q. Are you in any way connected with the Tank Line Company?—A. No, sir.

(A recess was here taken until 2 o'clock p. m., at which time the cross-examination was resumed.)

Q. Can you give us accurately the percentage of the business of the South American railways when you make up these other statements, Mr. Sedgwick?—A. I don't know that I can positively give you the accurate percentage.

Q. Give it as accurately as you can.—A. I have nothing to do with the statistical department.

Q. You can get it for us, can't you?—A. I will do the best I can.

Q. Now, you say as to the method of packing boxes in the earlier days, the first notice of any change came to you in 1887 when you were working on the Mexican Central Railway?—A. Yes, sir.

Q. There has been a gradual improvement on all railroads from that time to the present, has there, in the methods of lubrication?—A. I don't know on all railroads.

Q. On most railroads that you are familiar with, haven't there?—A. I don't know.

Q. Do you believe there are any American railways which have the old methods of lubrication?—A. I don't believe there are.

6930 Q. Railway service in all its branches has been very much improved in the last twenty years, hasn't it?—A. Yes, sir.

Q. Toward more efficiency and lower cost per unit in carrying freight?—A. Yes, sir.

Q. And passengers?—A. Yes, sir.

Q. You don't know who first discovered the approved method of packing boxes, do you?—A. No, sir.

Q. You don't know anything about it?—A. No, sir.

Q. You only know the Galena expert man came to you and told you about it?—A. Yes, sir.

Q. Were not most of the employees, or of the experts of the Galena Company, taken from railroad men?—A. Yes, sir.

Q. They hire railroad men who have had experience?—A. Yes, sir.

Q. Most of the improvements on railroads that you know of have been the result of the research and ability of railroad men, hasn't it?—A. Most of them, yes, sir.

Q. Railroad business, like other business, has improved vastly in twenty years?—A. You mean improved in service?

Q. Yes.—A. Yes.

Q. None of the railways on which you have worked in the United States have used any oils except the Galena Company's oil, have they?—A. No, sir.

Q. And you have never had any experience with any other companies?—A. No, sir. In my railroad service?

Q. Yes.—A. Yes, sir.

6931 Q. What company?—A. The Duluth, South Shore & Atlantic Railway.

Q. Of what company did it buy its oil?—A. I couldn't tell you; I don't know.

Q. You don't know whether it was one of the Standard companies or not?—A. I do not.

Mr. ROSENTHAL. Do you know whether it was the Galena or not?

WITNESS. The Galena came in during my service on the road.

Q. But prior to that time you don't know of what company it did buy its oil?—A. No, sir; I do not.

Q. What year was that service?—A. In 1889 I was on this railroad.

Q. Did you ever hear of the Vacuum Oil Company?—A. Yes, sir.

Q. That is known as a Standard company, isn't it?—A. I don't know.

Q. It used to sell railroad lubricants, didn't it?—A. I don't know of that.

Q. You don't know whether it did or not?—A. No.

Q. You don't know whether the Duluth, South Shore & Atlantic bought oil of it or not?—A. No, I do not.

Q. Have you heard of other concerns getting out instructions for men, in lubricating cars, besides the Galena?—A. No, I have not.

Q. Did you ever see the printed instructions given by the Pennsylvania Company to its employees?—A. I have not.

6932 Q. Did you ever see the printed instructions given by the Louisville & Nashville to its employees?—A. I have not.

Q. Did you ever see the instructions given by any other railroad, where the Galena was not serving them?—A. No, sir.

Q. You don't know whether any such instructions were given or not?—A. I do not.

Q. The oil you furnish to the street railways is car oil, isn't it?—A. We furnish a number of different kinds of oil.

Q. I mean that for the street cars themselves is car oil?—A. We furnish two or three different kinds for a car.

Q. What do you call it?—A. We have an electric-car oil, we have an air-compressor oil, and I don't remember the name of the other one.

Redirect examination by Mr. ROSENTHAL:

Q. From your experience in seeking to get business in Europe, what would you say as to the conservatism or the conservative methods of the European?—A. From an expert's standpoint it was very difficult to get anywheres near them at all.

Q. Did you find that their methods of doing business were so extremely conservative that they hesitate to make any change at all?—A. Yes, sir.

Q. And has that been your experience with foreigners, generally, when you have undertaken to sell them anything new?—A. As an expert; yes, sir.

Q. I forgot to ask you whether the Galena-Signal experts
6933 meet in annual convention.—A. They do.

Q. And has that been so ever since you have been connected with the company?—A. Yes, sir.

Q. Where are those meetings held?—A. At the head office of the company, in Franklin, Pennsylvania.

Q. And by whom are they attended?—A. By every expert and the majority of the salesmen and anybody we can get to them.

Q. You mean by the experts from all over the world?—A. We have them sometimes if we can afford to get them in and take the chances on it; we bring them in to our meetings.

Q. And what questions are discussed?—A. All questions regarding lubrication and mechanical defects in connection with lubrication.

Q. Are you in the habit of getting out a printed circular covering the questions for discussion?—A. The questions themselves?

Q. Yes.—A. Yes, sir.

(Paper marked Defendants' Exhibit 28.)

Q. I show you defendants' Exhibit 28. Please tell us what that is.—A. This is a series of questions that are asked by the different experts. About a month before we expect to have our meeting the manager of the expert department writes to each expert in the employ of the company and asks him to send in any questions that he wishes discussed at our annual meeting. So the experts send in these questions. After the questions arrive at the office they are taken and tabulated and put in form, and at the meeting they are all
6934 discussed.

Q. Is Defendant's Exhibit 28 a fair illustration of the subject-matters that have been discussed at these annual meetings?—A. It is.

Q. And have you been in the habit of getting out similar circulars heretofore?—A. Yes.

Mr. ROSENTHAL. I offer in evidence Defendant's Exhibit 28.

Mr. KELLOGG. Objected to as immaterial and incompetent.

Q. You were asked whether or not these Galena experts get passes from the railroad companies.—A. Yes.

Q. Is it not true that a given expert gets only a pass over the particular road on which he acts as an expert?—A. Yes, sir.

Q. And are not those passes expressly limited, so far as their use is concerned, while he is engaged in working for the railroad company?—A. Yes, sir.

By Mr. KELLOGG:

Q. Now, you have one man who attends to the Chicago & North-Western and the Chicago, Milwaukee & St. Paul, haven't you? He has a pass over both lines?—A. Yes, sir.

Q. And that covers something like 10 or 12 thousand miles?—A. Yes.

Q. So it is rare that any one man is confined to one railroad?—A. Yes.

Q. Mr. McKenna, as I recollect, testified that one of the advantages of having the Galena experts is that they have experience
6935 on all lines of road. You change your men around, then, do you?—A. At times, yes.

Q. A man who is on the Milwaukee and North-Western road may go on to some other road?—A. Yes.

Q. And he will have a pass on that line?—A. Yes.

Q. So that your passes are not usually limited to one line of road?—A. Where he is doing the work.

Q. Don't many of these men have passes over many roads?—A. I don't know that they do.

Q. Do you know that they do?—A. I don't know anything about it.

Q. You know they have passes and travel on them?—A. Yes.

Q. Now, you speak of conventions. You have had some experience with railroad employees. Don't you know that railroad employees, railroad officers and experts, also have conventions?—A. Yes.

Q. Where they meet and discuss questions of railroad operation, mechanics, engineering, and various other branches of the business?—A. Yes, sir.

Q. And exchange their ideas and gather knowledge?—A. Yes, sir.

Q. Rubbing up against each other is one way they get experience?—A. Yes, sir.

Q. There are auditors' conventions, are there not?—A. I don't know.

Q. Well, there are master mechanics'?—A. Yes, sir.

Q. And engineers'?—A. Yes.

Q. And purchasing agents'?—A. I don't know.

Q. You have heard of them, haven't you?—A. I haven't heard of their meetings, no.

6936 Q. Well, they do. What is the object of the master mechanics' meetings?—A. The principal object is to discuss standards.

Q. And they exchange their ideas and discuss questions of technical operation?—A. Yes.

Q. So that this is not confined to the lubricating department or railroads?—A. No.

Q. Now, all railroads also have men whose duties, or a part of whose duties, at least, is the supervision of lubricating, haven't they?—A. I don't know of any.

Q. Don't you know the Pennsylvania does?—A. No, I do not.

Q. Don't you know they have a department and an expert at the head of it?—A. No.

Q. You don't know that?—A. No, I do not.

Q. Who supervises the use on the Wisconsin Central?—A. I don't know.

Q. You sell that company, don't you?—A. I don't know.

Q. You have no man traveling on it, have you?—A. I don't know that.

6937 G. E. McVICAR, being duly sworn as a witness on behalf of the defendants, testifies as follows:

Direct examination by Mr. ROSENTHAL:

Q. What is your full name?—A. George Edward McVicar.

Q. Where do you live?—Franklin, Pennsylvania.

Q. How long have you lived there?—A. I went there in 1897; [illegible] years.

Q. What is your occupation?—A. Expert for the Galena-Signal Oil Company.

Q. How long have you been an expert for the Galena-Signal?—A. Since May, 1897.

Q. And what was your occupation before that?—A. I was locomotive fireman from 1873 until 1880.

Q. On what road?—A. On the Boston & Maine. And locomotive engineer from 1880 until 1897, when I went with the Galena.

Q. Locomotive engineer on the Boston & Maine?—A. Yes, sir.

Q. When you first began railroading, what was used for lubricating purposes?—A. Lard oil and tallow.

Q. Do you know how that was made?—A. No, sir.

Q. How was it supplied to you as a fireman?—A. The lard oil was used for engine oil on the machinery and the tallow used for lubrication of the valves and cylinders.

Q. How were those supplies kept in those early days by the railroad company?—A. They were kept in rather crude form as compared with what they are now; in barrels, I should judge.

6938 Q. Could each engineer or fireman go to the barrel of oil and help himself?—A. No; not necessarily. It has been done. They were supposed to have a man there to furnish supplies, but the oil houses were not locked, as a rule, in those days.

Q. What was the first railroad that you worked on after becoming an expert for the Galena Company?—A. The Pittsburg & Western.

Q. Where did that road extend?—A. From Allegheny, Pa., to Akron, Ohio.

Q. And did you also have to do about that time with the Pittsburg & Lake Erie?—A. Not when I went there. The Pittsburg & Lake Erie was the next road I was assigned to.

Q. Where was that from?—A. Their headquarters were at Pittsburg. They ran down into the coal territory, down to McConnellsville way, and west to Youngstown, Ohio.

Q. What was the next road?—A. The Bessemer & Lake Erie. At that time, I think, it was called the Pittsburg, Bessemer & Lake Erie; it is now the Bessemer & Lake Erie.

Q. When did you take charge of that as an expert?—A. I couldn't tell you, sir. I believe it was in 1898. I have no records.

Q. What other road did you then take charge of, after that?—A. The Baltimore & Ohio.

Q. When did you go with the Baltimore & Ohio?—A. January 1, 1900.

6939 Q. On what road or roads are you now the expert?—A. Of the Pittsburg and Western, which is now a part of the Baltimore & Ohio. I still have the Pittsburg & Lake Erie. When I went onto the Baltimore & Ohio they relieved me of the Bessemer & Lake Erie, and I now have, besides the Baltimore & Ohio proper, the leased lines of the Baltimore & Ohio, which consist of the C., L. & W. (Cleveland, Lorain & Wheeling), the Cleveland Terminal Valley, the Pittsburg & Western, the Ohio & Little Kanawha, and the

Ohio River, and the B. & O. Southwestern. I also have the Western Maryland Railroad.

Q. What is the P. & L. E. road?—A. It is the Pittsburg & Lake Erie.

Q. Do you know what oils were used on these roads before the Galena oils were used?—A. No, sir.

Q. Were there any roads that you became connected with as expert that theretofore had used their oils?—A. There is one other road, if you will pardon me, that I didn't mention. It was the Cumberland Valley. I do not have it now, but I had that road.

Q. Now you may answer whether there were any roads that used other oils than the Galena oils prior to your coming there.—A. Yes, sir; the Pittsburg & Lake Erie did, the Western Maryland did, and the Cumberland Valley.

Q. What do you know about the oils that they had been using before the Galena's?—A. I don't know anything about the oils prior to my going into the territory.

Q. Did you find any of those oils still being used when you first came?—A. In very few instances.

6940 Q. Those old oils were used until they were exhausted, were they?—A. They usually made requisition for a month's supply, and there was a very small quantity on hand when we went there. When the expert got there to look after that road the old supply had been entirely exhausted.

Q. Is it a matter of any difficulty to introduce a new system of lubrication on a railroad?—A. It quite often is; yes, sir.

Q. What difficulties is the expert confronted with in regard to that?—A. In changing the system of lubrication you have got to change the ideas of a great many men that have been taught to do things in different ways.

Q. Do you know anything about the comparative number of hot boxes on these roads that you went with?—A. No, sir. No records of anything previous to my going on the road. I don't think there were any records kept; I never saw any.

Q. How about the methods of packing boxes? Did you introduce any new methods in that regard on the roads which you came with?—A. Each one; yes, sir.

Q. Explain that, please.—A. Their methods previously were what we considered rather crude. We found the boxes overpacked with waste, the system of mixing the packing poor. They did not soak the waste; they hadn't soaking tubs for soaking the waste. Their implements for packing boxes—packing irons—were crude, and we usually started by introducing a system of properly soaking the waste the first thing.

Q. What do you mean by that?—A. Submerging it in oil
6941 for forty-eight hours at least, so that it would be thoroughly saturated and thoroughly soaked, all strands of the waste.

Q. What is the advantage, if any, of that?—A. Why, it is quite an advantage over their old method of putting oil and waste together.

Some of this waste must go into the box in a dry form; it isn't given time to soak. Dry portions of the waste are liable to come in contact with the journal, which might cause trouble. If the waste is thoroughly saturated—and we know it is—before it is put in the box, it insures better lubrication.

Q. And therefore less danger of hot bearings?—A. Yes, sir; certainly.

Q. What about that method of soaking the waste in relation to the more economical use of oil?—A. Why, we consider it is the most economical way; we get better lubrication and more economical lubrication.

Q. In what way is it a more economical lubrication?—A. The other way there was no system as to the amount of oil that went in the box. It was a case of guesswork. Take the dry waste and pour in an amount of oil and try to put it in there. When the waste is thoroughly soaked, which usually takes about a gallon of oil to soak a pound of waste, we drain away a certain portion of that and have a limited amount of oil to go into that box, which, by the recommendations of our people, is four pints to the pound, and it has been proven that there is economy in doing this. The other way they
6942 might get 5, 6, 7, or 8 pints of oil to a pound of waste, and consequently, it would be thrown out of the back of the box and come down the wheels, wasted; it wouldn't stay in the box. More than that, the excessive amount of oil will take the elasticity from the waste. The waste will only retain a certain amount of oil and retain its elasticity. The waste has to be in contact with the journal to lubricate the journal, because we put the oil to the journal by that means.

Q. Of what consequence is the elasticity of the waste in so far as proper lubrication is concerned?—A. The greatest consequence. Waste that is dead and heavy, over rough track and pounded away from the journal, it stays away from the journal and doesn't come back.

Q. Did this improved method of packing that you introduced make any difference in regard to the cost of the waste?—A. Yes, sir.

Q. Please explain that.—A. We found, in most cases, when we went there that there had never been any attention given to this matter; that is, it didn't look that way by the conditions of the box, and the boxes were filled too full, too high on the sides, too tight, using more waste than necessary to get good lubrication.

Q. So that there was a direct saving in the quantity of waste that was used?—A. Yes, sir.

Q. And was there any saving as to the length of time that a given amount of waste was used under your system that you intro-
6943 duced?—A. Why, in the matter of the amount of waste used there is one instance on a certain railroad where I had been camplaining of the excessive amount of waste in boxes on account of having had quite a few more hot boxes than we thought was right and proper. I had claimed that the excessive amount of waste in the

boxes was partially at fault for the hot boxes, the cause of hot boxes, and I took that matter up with the different people for quite a time to get——

Q. With what different people?—A. The superintendent of motive power and others connected with the mechanical department of that railroad. I finally had the superintendent of motive power consent to have the master car builder go out with me on the road and look into the matter of overpacked boxes and see that the boxes were packed in accordance with our recommendations, which is not to exceed the centre line of the journal. We started this about April, I should judge. Just previous to this time (I learned afterwards) the waste cost per thousand miles was nine cents on that road, and it decreased between then and January first to the extent that in the lowest month it was only 1½ cent per thousand miles. In talking about the matter later, the superintendent of motive power's clerk—I asked for information—told me that there had in those months, between April and the next January, been a saving of something approximately like $20,000 in waste alone.

Q. By reason of these improved methods?—A. Yes, sir; using less waste to pack the boxes. And we do know we got better results and a freedom—not freedom from hot boxes, but
6944 reduced the number of hot boxes.

Q. What is cooling compound?—A. I don't know what it is.

Q. What is its use and what was its use in connection with railroad lubrication?—A. It was used to cool off hot bearings, hot boxes, hot journals.

Q. In what way?—A. By applying it in the journal box when the journal was hot or heated, for the purpose of cooling it.

Q. Does the Galena use a cooling compound?—A. No, sir; we don't recommend its use. We try to eliminate the use of it and have done so.

Q. As I understand it, then, in the earlier days, before the use of Galena oils, when a bearing became hot, a cooling compound was used?—A. Yes, sir.

Q. For the purpose of cooling the bearings?—A. Yes, sir.

Q. Do you know of any road that uses it now where Galena oils are used?—A. No, sir; I don't; except a report that I received a few days ago. There were three pounds of cooling compound on that report. I hadn't seen anything of the kind for years. It had been eliminated entirely. I don't know where they got it or what they used it for. But that is the first I have known of it for a number of years.

Q. Do you know what the effect of cooling compound was on the journals?—A. It had a good effect temporarily or they would not use it to cool off the box, but the worst effect would be
6945 in the waste.

Q. Explain that, please.—A. It would gum up the waste next to the journal so that the box would have to be repacked after the car was got into its terminal, or another hot box would ensue

later. The oil in the box, if there was any, could not feed up through that material, that compound, and get to the journal.

Q. So that you would have to throw away the old waste?—A. Have to abolish absolutely what was in the box to put that box in good condition to give good service.

Q. Throwing away the old waste would mean removing entirely whatever oil there was in the box?—A. Usually so.

Q. And it would mean a repacking of that particular box?—A. Yes, sir.

Q. You were a fireman for many years and a locomotive engineer for seventeen years. From your experience as fireman and as a locomotive engineer and your subsequent experience as a Galena expert, have you any opinion as to whether there is any injurious effect in the excessive use of oil in lubrication?—A. Yes, sir.

Q. If so, please state what it is and how it comes about.—A. The excessive use of valve oil, in particular, is detrimental. The excessive valve oil in a steam valve and cylinder has to pass out with the steam, through the steam pipes and exhaust nozzle, and in doing so adheres to the exhaust nozzle, reduces the diameter of the exhaust nozzle, creates a greater draft on the fire, and consequently burns
6946 more coal. It is the intention of the railroad man of to-day, I think, to use in a locomotive as large an exhaust nozzle as possible for the purpose of keeping the coal consumption down; that is their object, and they are using them as large to-day in the big engines, I think, as six inches. Anything that reduces the size of that nozzle is a detriment instead of a benefit, and does produce a greater consumption of coal.

Q. In order to clean that exhaust nozzle, what is necessary?—A. Just to do that alone it is simply a matter of opening the front end and the man getting in there and cleaning it out, sometimes in different ways. Sometimes they used to burn them out. If it is just to simply clean the exhaust nozzle and the engine happens not to be under steam, it is a very short job. It can be done with the fire in the engine if you can get a man to go in there and do that, but it is difficult to get men to go into those places sometimes.

Q. So that it frequently happens that the excessive use of oil in that regard necessitates taking the engine off the road and sending it to the roundhouse?—A. Not necessarily so, because that work, I think, would be done when the engine was in fact through work; it is not a thing that would have to be done right in a minute.

Q. I see. What other bad effects, if any, follow the excessive use of oil?—A. The excessive use of oil—other oils—has its bad effect. Too much oil in boxes, too much oil poured on to driving boxes, as I stated before, takes the elasticity from the waste underneath,
6947 loads the waste down with oil, and the rough track and motion of the journal against that waste pounds it down and when loaded with oil the waste doesn't come back in contact with the journal, and, consequently, later on, a hot box, which is a waste. The best indication of a properly lubricated engine, I think, is when

the least oil is seen on her parts, except the rubbing surfaces. If there was more put on that engine and her cups are allowed to feed oil that will throw over the different portions of the engine and not the bearing surfaces, it must be wiped off. It takes waste to wipe it off, and waste costs money. I think the less oil used the better, for many purposes.

Q. What can you say, from your long experience in the railroad service, as to whether the number of hot boxes, generally speaking, in the first instance, has decreased, and, if so, to what extent?—A. Well, I have no records to show that, but the general concensus of opinion of the people we talk with on railroads regarding those things is that they have decreased very materially, some say fifty per cent, some twenty-five, some say one hundred per cent: but I don't know of a railroad that I have been in contact with but what there has been quite a marked reduction in hot boxes with the introduction of Galena oils and methods that we recommended in caring for journal boxes.

Q. I wish you would point out briefly, as clearly as you can, from your experience as an old railroad man, the disadvantages that arise from a hot box.—A. Why, there are many. If my brain was active enough and I could think of them, I presume I could talk
6948 longer on that subject than any other one. But it is an important thing on a railroad. There is delay to the train that the hot box is on, delay to other trains, opposing trains, particularly on a single track. It burns up the waste and oil that is in the box; liable to ruin a brass, which will have to be replaced, and might cut a journal, which would have to be changed; might possibly go to that extreme that it would burn off a journal, might wreck a train and might cause death. It would injure considerable if it went to that extreme I speak of; it would be a matter of a great many dollars to a railroad company to replace it. Delay to traffic in every way; possibly the setting out of the car, the transfer of freight, the burning of coal, in using coal to set out the car, and making up lost time, getting on time again from the delay due to the hot bearing, which was the cause of it in the first place.

Q. The cost of new brasses?—A. New brasses, waste, oil, possibly a journal, which is inestimable. It is only a matter of guesswork as to what the cost would be.

Q. Wages of the men?—A. Yes.

Q. Overtime?—A. Yes. We could talk on that a good while and think of something that would come in under that head.

Q. The general disturbance of the whole system?—A. The general disturbance of the whole system; good service.

Q. Now, what do you say has been the principal cause or have been the principal causes of the elimination of hot boxes in
6949 your time, as a railroad man?—A. The introduction of oil that will run boxes cool, if the conditions are correct; the elimination of compounds, which are a detriment; and the introduction of practices in soaking waste and getting it in condition, and introduc-

ing it into the box and caring for it when in there; frequent rigid inspection at certain times and places—all those things.

Q. Well, have those things been done?—A. In many cases they have—a great many; yes, sir.

Q. And by what company?—A. Why, to a certain extent on most every road that I have had to do with—I don't know about the others; there are roads that it has been a long time getting that done, and there is room for improvement yet.

Q. Who has been responsible for the introduction of the better grade of oil and better methods?—A. The Galena-Signal Oil Company, I should say.

Q. Do you know of any other lubricating company that ever endeavored to use such methods?—A. No, sir.

Q. In your capacity as an expert, Mr. McVicar, will you please state the authority that is given you from the management of the various roads on which you are working as an expert?—A. Why, I don't assume or accept authority. I just wish the privilege of mingling among the men at the most important points and making suggestions to their men, and I am unlimited in that, as far as I know, on most every road that I have, from the superintendent of motive power down to the man that oils the cars. I have never been set back in any way by their telling me I was out of my place. I ride
6950 engines if I want to; I go to the roundhouse, I go to the shops, the ash pit or to the oil house, or to their offices as a gentleman would when they are ready to see me, and I have never been told that I was out of my place; and many times I have been told to give the instructions to the men, but I don't think it wise to do that.

Q. Now, what do you do as an expert when you travel around that way? You don't sell any oil, do you?—A. No, sir.

Q. Do you try to sell any?—A. No, sir.

Q. Don't solicit any?—A. No, sir. I am not hired for that business.

Q. Tell us just what you do do.—A. Why, I go to the territory I am assigned for the purpose of getting the best results from the oil that we furnish that road, in its application, its use. I do all in my power to assist those, from one official down to another, in getting the best results from the oils.

Q. You come in contact in that way with men in all grades of the service that have to do with lubrication?—A. Yes, sir, I intend to.

Q. Beginning with the master mechanic, the superintendent of motive power?—A. The superintendent of motive power, and sometimes the general manager and others in other departments, but those men particularly.

Q. What do you do so far as the superintendent of motive power is concerned, for example?—A. I generally try to put him in touch and in line with things as regards our oil; defects and things
6951 that I find on the road, so that he will know the conditions as they exist, as I see them. If my idea of things is suitable to

him and I can induce him to issue instructions to the men to rectify those things and see that those instructions are carried out, I think I am getting pretty good cooperation to get the results from our oil. I think the superintendent of motive power is a very valuable man in that line.

Q. That is to say, as you travel around on the road you come in contact with these general elements of weakness?—A. Yes, sir, as I consider them from my point of view.

Q. And you then take up those things with the man or men that you think can remedy them?—A. Yes, sir; first, with the man in charge at that station where I find those defects. If I fail to get redress from him, I may, out of his being a good fellow and has something else to attend to and hasn't got around to it, put it off and come back to him again, possibly the third time; but when I can't get any redress from him and he pays no attention when I have showed him what is wrong, then I go higher up, and eventually it might come to the general superintendent of motive power. As a rule, the general superintendent of motive power don't go down into those details—he has got other men for that; and if we can get results through those men it saves bothering a busy man ofttimes, but if it is necessary to go there we do.

Q. Has it been your experience as an expert that you receive good cooperation from the railroad companies that you have been on?—A. It certainly has.

Q. That is one of the principal things that you endeavor to
6952 get, isn't it?—A. It is the main thing.

Q. What do you mean by that?—A. I mean that if we don't get cooperation we don't get the results; if we do get cooperation we do get the results.

Q. You mean by "results"——A. Better service, efficiency in the service.

Q. Efficiency and economy of service?—A. Efficiency and economy, and bringing the service up nearer to the standard of efficiency.

Q. So you regard the matter of the cooperation of railroad employees that you meet in your work as the most important single element that looks toward efficiency and economy of lubrication?—A Very decidedly; very decidedly; for without that I don't think very much could be accomplished.

Q. And where you do not get it you do not get economy?—A. We certainly do not.

Q. When you first begin with a new railroad, do you experience any difficulty in regard to this matter of cooperation?—A. Yes, indeed.

Q. I wish you would tell us a little about that.—A. It depends upon the people that you do business with, perhaps, how you approach them, and so on, and whether they are prejudiced in regard to whether Galena oils are any better or whether our methods to improve the conditions are any good or not. There is always some man out of many that is indifferent, don't care. In order to get that man you

have got to have the cooperation that I just spoke about; some-
6953 body to make him do what he has been already instructed to do but failed to do. One instance, which I will relate, is the Western Maryland Railroad when I went there. There was a complaint came to our company of hot boxes. Our contract had taken effect late in December. This was in January. Mr.—well, he was the mechanical superintendent on that road at that time, and he was averse to the use of Galena oil and Galena methods. But they were put on there, and he made a complaint of hot boxes in the month of January, due to Galena oil and possibly Galena methods. He made quite considerable trouble. When we came to follow the matter up, the old oils had not yet been exhausted; they were still using them. In the month that showed up the hot boxes he complained of they were using cooling compound, and the boxes were overcrowded with waste, oil, cinders, and cooling compound. In two or three months after that, after getting some cooperation and getting the master mechanic at that point to go into the matter with me, we had the boxes repacked and put into service without cooling compound, and made a radical change for the better, and the man appreciated it afterwards.

Q. In these ten years that you have been acting as an expert of the Galena-Signal, what results have you experienced on the roads that you have worked, so far as a reduction in the quantity of oil is concerned and more efficient and more economical lubrication is concerned?—A. I will cite you to the principal road that I have, which is the Baltimore & Ohio Railroad, and consists of the subsidiary lines
which I mentioned before, the Cleveland Terminal Valley, the
6954 Cleveland, Lorain & Wheeling, the Pittsburg & Western, the Ohio & Little Kanawha, the Ohio River. I have got in my mind the number of miles made to the pint on this road, of valve oil, starting July, 1902, which was 48 miles per pint; ending with the month of December, 1907, the miles per pint, for valve oil, were 53.

Q. Now, that is an improvement, is it?—A. Very much.

Q. How was that brought about?—A. By assistance and cooperation from the heads of the different departments.

Q. Have you in mind any other elements of improvement on any roads during the time that you have acted as expert?—A. Yes.

Q. Please state them.—A. The Western Maryland cost per 1,000 miles has been very high for quite a long period, and I have been anxious to get better results and have taken the matter up with the different people there, without getting any redress at all. There have been changes in heads of departments there in the past two years; they have had three different superintendents of motive power. I have asked to have a schedule put in effect so we could get better miles to a pint, and I failed to do so until January of this year, when there was a schedule of allowance put into effect. The cost on that road for the month of October was 3.61. The schedule was put in effect late in January, and the report for February showed a cost of 2.75 cents and the cost for March showed 2.30, which is our guaranteed figure, and it was brought about by getting a schedule of allow-

ance in on that road, and I have been two years trying to get that thing started, and in our contract it came about in that way.

6955 Q. What is your opinion as an expert, as to whether or not the high rate of speed now maintained by express trains could be continued without the use of Galena oil?—A. Oh, I couldn't say that it could not, but I think it is doubtful.

Q. Or some other oil equally as good as the Galena?—A. Yes, sir.

Q. What do you say in reply to that?—A. I don't think it could be carried on without Galena oils or some oil equally as good.

Q. Why not?—A. From the matter of hot boxes.

Q. During the ten years that you have been an expert for the Galena company, what can you say as to whether or not that company has been constantly making improvements in the different things relating to the question of railroad lubrication?—A. I think they certainly have constantly been making improvements.

Q. Is that a matter of constant study and work on the part of everybody connected with the company?—A. Each one individually and collectively.

Q. Do you ever have any occasion to discuss with the railroad officials that you come in contact with the question of the construction of parts in their relation to lubrication?—A. Yes, sir.

Q. Have you done that frequently?—A. Quite frequently.

Q. Have you ever suggested changes in that regard?—A. Yes, sir.

6956 Q. For the purpose of improving the lubrication?—A. Yes, sir.

Q. And have you known of such changes to be made at your instance?—A. Yes, sir.

Q. These lines on which you are now acting as an expert, are they all in the same general territory?—A. Yes, sir.

Q. Do they lie close to each other?—A. Yes, sir.

Cross-examination by Mr. KELLOGG:

Q. How many miles of railroad do you have charge of?—A. I can't tell you, sir.

Q. All of the Baltimore & Ohio system?—A. Yes, sir.

Q. And the Baltimore & Ohio Southwestern?—A. Yes, sir.

Q. Any roads except the Baltimore & Ohio?—A. Yes, sir; the Pittsburg & Lake Erie.

Q. The Pittsburg & Lake Erie is about how many miles?—A. About 180.

Q. The Bessemer & Lake Erie, also?—A. No, sir, I don't have that now.

Q. Do you have any except the Pittsburg & Lake Erie, outside of the Baltimore & Ohio system?—A. The Western Maryland.

Q. How many miles is that?—A. It runs from Baltimore—the territory I cover—to Elkins, West Virginia. I should say it was a little over 300 miles, 350.

6957 Q. Those three systems are the systems you have charge of?—A. Yes, sir.

Q. Have you any idea about the mileage of the Baltimore & Ohio?—A. The Baltimore & Ohio proper?

Q. No, in all its branches.—A. I should judge there was 4,400 or 4,500 miles, for a guess. I don't know.

Q. Do you have passes on all those roads?—A. Yes, sir.

Q. Is your compensation paid by the roads?—A. No, sir.

Q. Paid by the Galena-Signal Oil Company?—A. Yes, sir.

Q. You are not an employee of the roads?—A. No, sir.

Q. You are an employee of the Galena-Signal Oil Company?—A. I am.

Q. You don't remember about the mileage of the Baltimore & Ohio system?—A. Not the exact mileage, sir, I couldn't state.

Q. Your time is taken entirely with those systems of road, is it?—A. Yes, sir.

Q. Do you do anything else?—A. No, sir.

Q. Did you ever take any new business?—A. Yes, sir.

Q. Have you solicited new business?—A. No, sir.

Q. You got it without solicitation?—A. I was sent by the company to renew a contract.

Q. What contract?—A. The Union Railway of Pittsburg.

Q. Did you negotiate a new contract?—A. Yes, sir.

Q. With the Union Railway of Pittsburg?—A. Yes, sir.

Q. Any other companies?—A. No, sir.

Q. Never got any other business?—A. No, sir.

6958 Q. Who is Robert McVicar?—A. He is my brother.

Q. What is his position?—A. He is in the sales department of the Galena-Signal Oil Company.

Q. He is not an expert?—A. No, sir.

Q. Were you here when Mr. McKenna testified?—A. I was part of the time.

Q. Did you hear him speak about the number of men—that one man looked after the Northwestern and the Milwaukee systems?—A. I think I did.

Q. Something like 11,000 or 12,000 miles?—A. Yes, sir.

Q. Have you that much?—A. I have got, I think, about 5,000 miles of road, I should judge.

Q. What is your salary?—A. That is a personal matter, I should judge, between myself and the company.

Q. I don't want to pry into your personal affairs, but Mr. McKenna brought up the question as to whether they could afford to hire such men.

(Mr. Kellogg and Mr. Rosenthal confer privately.)

Mr. KELLOGG. I will withdraw the question for the present.

Q. Now, you were either a fireman or engineer in the Boston & Maine service, or some road up there?—A. Yes, sir.

Q. From 1873 to 1897?—A. Yes, sir.

Q. And in those early days—1873 to 1880—the system of lubrication on railroads was very crude, wasn't it?—A. As compared with to-day, I should say yes.

Q. And it has been improving ever since you have been rail-
6959 roading, hasn't it?—A. I think so.

Q. All other branches of the service, too, have improved, haven't they?—A. I should judge so.

Q. The mechanical part of the railroad has been improved very much?—A. It must have.

Q. And all of the machinery and the appliances and the matter of doing business have been very much improved?—A. To a certain extent, in a great many localities; yes.

Q. Even in the use of coal, systems have been used by railroads for keeping track of the amount of coal used per ton of freight hauled 1 mile?—A. I expect so, on some railroads. I don't know that they keep those records.

Q. And there is a very careful supervision over the use of coal?—A. There should be.

Q. That has gone so far as for railroad men to instruct their engineers in the matter of running into terminals with a large amount of coal in the fire box, hasn't it?—A. Certainly.

Q. And careful methods of firing the coal have been used, haven't they?—A. That all tends to better service and economy.

Q. And experts have instructed the men on that subject, haven't they?—A. I expect they have.

Q. You know that to be a fact, don't you, in your experience?—A. In some instances I do; yes, sir.

Q. That is only one of very many economies that have been
6960 introduced by the railroads themselves, isn't it?—A. That is only one; yes.

Q. And the improved methods of lubricating cars and engines is only one of the improvements?—A. One of the many.

Q. Now you don't pretend to say that that has been solely due to the Galena-Signal Oil Company?—A. Not all of it.

Q. They have employed principally railroad men, like yourself, haven't they?—A. Yes, sir. Well, some better ones, I hope.

Q. And all of the statistics on which you have based your knowledge as to the use of oils, and economics, and hot boxes, are statistics kept by the railroad companies, aren't they?—A. Yes, sir.

Q. The railroad companies themselves keep the records of the amount of oil used, hot boxes, cost of oil and waste?—A. They are supposed to keep records of those. They don't all keep records of hot boxes; very few.

Q. Well, they generally keep records of the amount of oil and waste used per thousand mile run?—A. They calculate to keep in touch with whether there are many hot boxes or not.

Q. In all railroad service, the railroads keep statistics, so that they can put their hand on any increase in the item of cost or decrease in the item of cost of operating the road?—A. They should.

Q. They do, mostly, don't they?—A. To a great extent I expect they do. They do on roads that I come in contact with.

Q. The men who directly instruct the men about all these
6961 matters are the railroad men themselves, are they?—A. Yes, sir.

Q. You come in contact with the men having charge of it?—A. We come in contact with them all, but more particularly the heads.

Q. Now you say that you do not know of any other company which uses or had this system of instruction, except the Galena-Signal Oil Company?—A. They don't have it on any other road that I have to do with.

Q. Any road that you have to do with buys its oil of the Galena-Signal Company, doesn't it?—A. Sure. That is all I know about.

Q. And always have?—A. Yes, sir.

Q. And you don't know anything about the methods of operation of other oil companies?—A. I certainly don't.

Q. Don't you know anything about it?—A. No, sir; not at all.

Q. You don't know whether other roads give their men the same kind of instructions or not?—A. I couldn't make a statement to that fact.

Q. You don't know whether other lubricating companies furnish a like system of inspection?—A. I didn't know of it, if they do.

Q. You have had no experience with any oil except that of the Galena-Signal Oil Company?—A. Not since coming with the Galena-Signal Oil Company.

6962 Q. And before coming with the Galena Oil Company, of whom did the road you worked for, the Boston & Maine, buy their oil?—A. I can't state; but I think it was Swan & Finch.

Q. Yes; a Standard Oil concern?—A. Well, I don't know that.

Q. You understood them to be, didn't you?—A. I expect they are. I don't know whether they are or not.

Q. Most all oil companies are Standard Oil concerns.—A. There are quite a few, I guess.

Q. Have you ever heard of Borne-Scrymser Company?—A. I have heard of them; yes, sir.

Q. The Bedford Petroleum Company?—A. I can't recall that particularly.

Q. Well, they are all known—at least Borne-Scrymser is known to be a Standard Oil concern, isn't it?—A. I think so.

Q. Now, cooling compounds are not used to any great extent by any road and have not been for many years, have they?—A. Not on the roads that I am connected with.

Q. You don't know that any modern road uses cooling compounds?—A. I don't think they do to-day.

Q. I suppose the Galena-Signal Oil Company or its predecessors had been selling railroads oil for years before you went with them, hadn't they?—A. Yes, sir; I understand so.

Q. And men had been inspecting railroad cars and engines?—A. Yes, sir.

Q. You don't think that railroads could keep up their high rate of speed without some oil equally as good as the Galena, you say?—A. I doubt if they could.

6963 Q. Of course good lubrication is necessary to any machinery that runs at a high rate of speed?—A. It is a very important thing for good service.

Q. Have you ever been in Europe?—A. No, sir.

Q. You don't know that their trains run at a very high rate of speed?—A. I have heard that they did.

Q. And with very few accidents?—A. Yes; remarkably.

Q. The record of the roads in Great Britain is quite a remarkable record, isn't it?—A. I have heard so.

Q. Do you know any of the other inspectors in the employ of the Galena-Signal Company?—A. I know a big portion of them. There are some men employed now that have been recently hired that I am not familiarly acquainted with.

Q. Whom do they hire generally? Men off the railroads?—A. Yes, sir; they have up to now, as a rule.

Q. When they wish a man as an expert they go and get a railroad man, don't they?—A. As a rule they do; at least they have in the past.

Q. What railroad was it regarding which you said that the number of miles to the pint decreased from 1902 to 1907? The B. & O.?—A. I said the miles to the pint had increased.

Q. Yes; that is what I should have said. I don't know whether I did or not. That is, the number of miles——A. Run per pint of oil——

Q. Had increased?—A. Had increased very materially.

Q. From 1902 to 1907?—A. From 1902 to 1907.

6964 Q. Yes, that is what I understood you to say. That was the B. & O. Railroad?—A. Yes, sir.

Q. What was the number of miles per pint of oil in 1902, on the B. & O. Railroad?—A. 48 miles to the pint, in July, 1902.

Q. You mean for the year?—A. No, sir; for that month.

Q. You mean just for one month?—A. Yes, sir.

Q. The fairest estimate is to take a whole year, isn't it?—A. Well, I don't know. It might be. But I could not give you the average for the year, because I haven't those figures.

Q. Now, according to the exhibit put in evidence by the Government, furnished by the Galena-Signal Oil Company, the Baltimore & Ohio Railroad Company, for the year 1902, ran 52 miles to the pint of valve oil, and in 1906 only 49 miles.—A. Well, that might be.

Q. What do you say about that?—A. I say that for July, 1902, they made 48 miles to a pint, and in December, 1907, they made 53 miles to a pint. There were no months in the meantime, except four, that they made less than 48 miles to a pint, but there was a month that they made 59 miles to a pint.

Q. Now, the railroads furnish the Galena-Signal Oil Company statements, don't they, every year?—A. That is the understanding—every month.

Q. Every month. And the statements furnished by the Galena-Signal Oil Company ought to be correct, oughtn't they?—A. Mine that I am speaking of is copied from them.

Q. Copied from the Galena-Signal statements?—A. Yes, sir.

6965 Q. According to those statements in evidence, the number of miles had decreased from 1902 to 1906, for the whole years?—A. There is not a month but four months out of all that term that shows less than 48 miles to a pint, and I can show months as high as 59 miles to a pint of valve oil.

Q. How did you happen to compare a summer month with a winter month?—A. I didn't happen to at all. I just took the month which is the first month I have a record of and is the last month I have a record of.

Q. The Galena-Signal Oil Company have a record of every month, haven't they?—A. They certainly have.

Q. Well, you don't say that the record we have, furnished by the Galena Company here, showing that for the whole year 1902, year ending June 30, 1902, the record was 52 miles per pint of valve oil, do you?—A. I don't what, sir?

Mr. ROSENTHAL. Mr. Kellogg, where is there any exhibit that shows miles per pint?

Mr. KELLOGG. Well, you look at 409, and see if it is not a very easy matter to calculate it from that, Mr. Rosenthal.

Mr. ROSENTHAL. That was not your statement.

Mr. KELLOGG. The exhibit shows it, right on its face.

Mr. ROSENTHAL. Where?

Mr. KELLOGG. It shows the gallons of valve oil, and the locomotive mileage——

Mr. ROSENTHAL. Yes.

Mr. KELLOGG. And I suppose everybody knows the number of pints to a gallon.

6966 Mr. ROSENTHAL. But they nowhere undertake to give the number of miles to a pint, do they?

Mr. KELLOGG. All you have to do is to divide the number of pints by the number of miles, isn't it?

Mr. ROSENTHAL. I agree with that.

Mr. KELLOGG. Very well.

Mr. ROSENTHAL. Your statement was that the exhibit stated so many miles to the pint. That is not on any exhibit.

Q. Could you figure from that exhibit (handing Petitioner's Exhibit 409 to the witness) the number of miles of locomotive run per pint of valve oil, Mr. McVicar?—A. No, sir.

Q. You can't?—A. No.

Q. It shows the number of gallons of valve oil, doesn't it?—A. Yes, sir; the price and value.

Q. It shows the number of gallons?—A. Yes.

Q. You know how many pints there are in a gallon, don't you?—A. Yes, sir.

Q. If you multiply the number of gallons by the number of pints in a gallon you will have the number of pints, won't you?—A. Where do your miles come in?

Q. Look down here. Do you see the locomotive mileage?—A. Yes.

Q. And you divide the number of miles by the pints and you will have it, won't you?—A. You should, if the figures are correct.

6967 Q. Yes, sir; I guess so.—A. I don't know anything about those figures.

Q. Well, they are furnished by the Galena-Signal Oil Company.—A. Mine are copied from the Galena-Signal Oil Company's books.

Q. They both come from the same source, then. Mr. Steinbrenner testifies these are correct. Now, the average performance for a year is more important than for one month, isn't it?—A. I think it is better for a term of years.

Q. Yes; for a term of years.—A. That is what I was figuring at.

Q. Well, these statements show it for every year. [Indicating.]—A. Yes.

Q. And that is the very best estimate, isn't it?—A. Perhaps not.

Mr. ROSENTHAL. After the Galena Company gets hold of an experienced railroad man and employs him as an expert, they then proceed to develop him as an expert, don't they?

WITNESS. They did me. I know more than I did when I came with them, very much, in the line of work.

Mr. ROSENTHAL. They educate a man up.

WITNESS. Yes, sir.

6968 WILLIAM WALSH, called on behalf of the defendants, being duly sworn, testified as follows:

Direct-examination by Mr. CRAWFORD:

Q. Where do you live?—A. At Cleveland, Ohio.

Q. What is your business?—A. Galena expert, Galena-Signal Oil Company, mechanical expert.

Q. How long have you been in the employ of the Galena-Signal Oil Company?—A. Since 1896.

Q. Continuously?—A. Yes, sir.

Q. Prior to 1896 what was your business?—A. I was a railroad man. I was a machinist apprentice in the old three C's & I. shop at Cleveland, Ohio, starting there about 1882; went to the C., N. O. & T. P. Railway about 1886, and was on the C., N. O. & T. P. Railroad from 1886 until 1896, and, while on that road, was machinist, locomotive fireman, locomotive engineer, general air-brake instructor, and master mechanic of the Louisville & Southern Railroad.

Q. When did you first come in contact with Galena oils?—A. As a locomotive engineer.

Q. When and on what road?—A. On the Cincinnati, New Orleans & Texas Pacific Railroad, in the year 1888.

Q. Did you find the Galena oils in use when you first went with that road, or were they introduced while you were with it?—A. They were introduced while I was with it.

Q. What oils had you previously used, if you know?—
6969 A. I don't know the name of the oil.

Q. You remember the occasion, however, when the Galena oils were first used, do you?—A. Yes, sir.

Q. And did you yourself use them as an engineer on that road?—A. Yes, sir.

Q. Have you any recollection as to any experiences with hot boxes while you were on that road, before and after the Galena oils had been introduced?—A. Yes; I remember very well that, while a locomotive engineer on that road, we had numerous hot boxes, while the old oil was used there, and I remember very distinctly after getting Galena oil that our hot boxes were reduced very materially.

Q. Describe some of your experiences with hot boxes when the old oils were used. What did it mean to have a hot box, at that day?—A. It meant a delay to all of our trains; it meant a delay to the train that I was running, which would mean the loss of connections at the terminal point for the passengers; and it would also mean the delay to the opposing passenger trains and also the freight trains.

Mr. KELLOGG. Why go over that over and over again? Everybody knows what that is, and it has been sworn to; there is no dispute about that question. Anybody who has got any common sense knows what a hot box means on a railroad.

Q. When you became a Galena expert, what roads were you first placed in charge of?—A. I was assigned to a number of roads in Ohio and West Virginia. Among them was the Columbus, Hocking Valley & Toledo; the Columbus, Sandusky & Hocking; the
6970 Cleveland, Akron & Columbus; the Ohio River road; and I suppose twenty others that I would have to look at my records in order to give an answer to.

Q. Now, to come down a few years later, what roads were you in charge of in 1889, say?—A. Between 1899 and 1900 I was with the Chicago & Northwestern; Chicago, Milwaukee & St. Paul; New York, Chicago & St. Louis.

Q. Have you had any other roads since then than those?—A. Yes; the C., L. S. & E.——

Mr. KELLOGG. What is that?

WITNESS. Chicago, Lake Shore & Eastern; the Elgin, Joliet & Eastern; I had the C., St. P., M. & O.; the Fremont, Elkhorn & Missouri Valley; the Sioux City & Pacific; the Chicago & Western Indiana. That is about all I can think of.

Q. You mean that you had all of these roads simultaneously?—A. Yes, sir.

Q. And have you all of them now?—A. I have the greater portion of them now. I have the Chicago & Northwestern; the Chicago, Milwaukee & St. Paul; the New York, Chicago & St. Louis; Chicago & Western Indiana; the C., L. S. & E.; and the E., J. & E. I think that will about cover it.

Q. Now, state generally what your duties are as expert, and how you perform them, on these different roads.—A. We receive a letter

from our people advising us that a contract has been executed with the railroad. We have a letter of introduction, as a rule, to the man in charge of the railroad. We produce that letter. He in
6971 turn gives us a letter of introduction to the heads of his departments that have to do with the lubrication of the road. They in turn give us letters of introduction to their subordinates. We take those letters, start out over the road, and we meet everyone who has to do with lubrication. We go into the storehouse; we find out what capacity they have for keeping and storing the oils. We go out into the freight yard, and we look up the orders; find out what they have to keep the oils in. And we instruct those men in the proper and most economical way of caring for those oils in every particular.

Q. Mention some of the particulars.—A. We recommend that an oil vat be put into the oil houses——

Mr. KELLOGG. A what?

WITNESS. An oil vat, a soaking vat, being put into the oil houses; that the waste be put into that oil vat; that the oil be poured on the waste in the vat, and that it be soaked for not less than 48 hours; we suggest that the waste be entirely submerged, so that every strand of the waste that is put into that vat is thoroughly well saturated. After we are satisfied that it is well saturated we put it on a screen, which is a contrivance on the end of the vat, a perforated piece of iron or netting, which allows the loose oil to flow from that waste until we have the required amount of oil in the waste that is necessary to give the car perfect lubrication, which is about four pints of oil to one pound of waste. Now, we suggest four pints of oil
6972 to a pound of waste for the reason that I have found as I have traveled over the various roads that too much oil has been applied to one pound of waste. A gallon of oil to one pound of waste, of course, means eight pints, or about eight pounds; it means that that one pound of waste must carry eight pounds weight. We suggest that the waste only be filled so that it will only carry four pounds weight. The reason for that is that when this waste is applied to a car box and the car box has no springs of any kind under it it has a tendency to settle anything that is loose to a solid condition. The heavier the material the quicker it will settle. So that if eight pints of oil was allowed to remain in one pound of waste and applied to a car box it would be liable to settle quicker than four pints to one pound of waste would.

Q. Do you do anything about instructing in packing?—A. Oh, yes. We take the men to the car box. We first drill them on the mechanical conditions of the car box. We point out the defects that might occur in the car axle. We point out the defects that they must look for in the car bearing. We very often apply that brass ourselves. We show the necessity of putting the wedge in the proper place in the box.

Q. Whom do you mean by "we?"—A. I do.

Q. You mean you and other experts?—A. Yes, sir. I suppose the other experts do the same as I.

Q. You have done these things?—A. I have done these things, yes. We then pack the box by taking a roll of waste, pushing
6973 it to the extreme rear end of the box, to act as a dust guard to keep out the dust and retain the oil, and then we put the loose oily packing from the inside collar to the outside collar. We never get it above the opening in the box or the central line of the journal. Then we put a piece of waste in the front, to hold the waste underneath the journal in its place.

Q. Now, Mr. Walsh, you have stated here quite at length the various methods which you suggest to railroad employees, and which you show them how to do. What authority have you to enable you to secure the carrying out of those suggestions?—A. In the territory that I am in, I get every assistance. The officers of the roads that I am connected with give me every opportunity. I am privileged to go to any man who has anything to do with lubrication and make any suggestions and recommendations that I think are for the welfare of the railroad companies which I am on.

Q. And are your instructions or suggestions uniformly followed?—A. As a rule, yes, sir.

Q. What special means do you take to get at the railroad men so as to instruct them or educate them in your system?—A. In the last seven or eight years we have held a school, along on the Chicago & Northwestern and Chicago, Milwaukee & St. Paul railroads.

Q. You mean to say you have held them, do you?—A. Yes, together with the officials of those roads. We would get the men together and explain the question of lubrication. We would
6974 show the nesessity of soaking the waste to the trainmen. We would show the necessity of keeping the waste in contact with the journal; and we would talk over lubrication generally, instructing them in the proper method of taking care of their cars.

Q. How large were those gatherings?—A. We have had as high as a hundred.

Q. Get them into a hall, do you?—A. Yes; halls have been rented at times, on the Chicago & Northwestern Railroad, to get the men together so that I might talk to them on lubrication and hot boxes.

Q. What result have you noticed from this system?—A. A very decided improvement, of course, in the hot boxes; a very decided improvement also in the cost per one thousand miles run.

Q. Any economy in oil?—A. Yes; very materially.

Q. Now, has there been any important change in the method of packing boxes, in respect to the height to which you pack them?—A. Oh, yes.

Q. Explain that.—A. We figure that the waste should not exceed the center line of the journal, and we instruct the men along those lines.

Q. Why is that?—A. The waste on the side of the journal, or when it is high in the box, becomes dry, because the capillary attraction

of the waste won't draw the oil up above the center line of the journal. The journal may be very well fed, that is, supplied with oil at the bottom; the failure of the capillaries of the waste to
6975 draw the oil high on the side, leaves the waste on the side dry, and, as the axle revolves, the dry waste wipes off the lubricant before it reaches the bearing.

Q. And the result of that would be——A. A hot box, of course—friction.

Q. Friction, causing a hot box?—A. A hot box.

Q. Now, this work of yours, which you have been describing, and your method of giving instruction, etc., has that extended over a period of years?—A. Yes; I have always followed that.

Q. Since you were an expert?—A. Since I became an expert, yes.

Q. And that is, in general, what you do to-day?—A. Yes.

Q. How does the total number of hot boxes on American railroads compare with those, say, fifteen years ago, according to your observation and your experience?—A. Well, they are very materially reduced. I have no figures on the——

Q. There has been a great reduction, has there?—A. Oh, yes.

Q. What, in your opinion, have been the causes which have brought about the reduction in the number of hot boxes?—A. I think the mechanical conditions, in the first place pointed out to the railroad companies by the expert department—mechanical expert department—of the Galena-Signal Oil Company, have aided to a very great entent; and then the methods and system and practices that have been brought to the railroad companies by the mechanical experts.

Q. You mean the mechanical experts of the Galena-Signal
6976 Oil Company?—A. Of the Galena-Signal Oil Company, yes, sir.

Q. Have you introduced any methods for reduction in the use of waste?—A. Yes, sir.

Q. Please explain those.—A. If one will follow out my instructions, the quantity of waste applied to a car box will be reduced 25 per cent compared with the system of caring for the boxes ten or twelve years ago on the roads that I had to do with.

Q. Just explain what your system is.—A. Car boxes were filled up very high, away above the center line of the journal. We have tried to discontinue that practice, and have succeeded, in a number of instances—in almost every instance. That has taken away about one-quarter of the waste that was necessary, or that they did at one time use to pack a box with.

Q. Now, after the old waste is taken out of the box, is any use made of it?—A. Oh, yes. The old waste is again used. As the old waste is removed from the box it is put into a soaking vat, where the oils are hot; the foreign particles, metals, sand, and everything that the box picks up, precipitates, thereby cleansing the waste. The waste is again used; the sediment is taken out and burned; and we are able to get a very large number of pounds of babbitt from this old material that formerly had been burned up in the locomotive firebox.

Q. What do you mean by "babbitt?"—A. Babbitt is an anti-friction metal that is used on the face of car bearings.

Q. Is that a by-product, then?—A. It is not a mixture of the brass, it is simply an addition.

6977 Mr. KELLOGG. You never worked on a farm, or you would know.

Q. Has this method of boiling the old waste in these vats had anything to do with reducing the cost of lubrication?—A. Oh, very materially.

Q. How is that?—A. In some cases the quantity of oil used has been cut right in two, in one month.

Q. Why?—A. Every car box has too much oil in it, as a rule. Everybody is pouring oil into a car box. And when it is put into the hot oil, we get it then in uniform shape.

Q. Get what in uniform shape?—A. The waste, or the packing. And we remove a portion of the oil from the waste, thereby filling or adding more to the soaking vat.

Q. You mean that you extricate oil from the old waste and save it for future use?—A. That is it.

Q. And at the same time you are able to use the waste over again?—A. The waste over again, yes, sir.

Q. So that you also save on the quantity of waste?—A. On the quantity of waste and the oil.

Q. And thereby the cost of the waste?—A. Yes.

Q. And all of that conduces to a reduction in the total cost of lubrication, does it?—A. Yes, sir.

Q. Have you had any instances, in your experience as a Galena expert where you did not get cooperation from railroad officials?—A. I can't recall. As a rule I have been able to get cooperation.

Q. What importance do you place upon having coopera-

6978 tion?—A. Without cooperation it would not be possible to get results—to improve the conditions in any manner.

Q. Why?—A. It is necessary to have the men that you are doing business with believe that what you are doing is right, if you want them to adopt your methods. My policy has been to get cooperation by teaching men the best way of doing their work.

Q. Is your advice ever sought by railroad officials on special matters of lubrication?—A. Yes; I have been sent for a number of times to investigate questions pertaining to lubrication, hot boxes, etc., along the line of the road.

Q. Will you explain briefly what good lubrication consists in? I mean, take a bearing, a journal, and show what the lubrication of it consists in.—A. What lubrication is, do I understand? Is that the question?

Q. Yes.—A. Why, it is simply the separation of a moving part coming in contact with a stationary one.

Q. How do you do that?—A. By a film of oil.

Q. A film of oil comes between the bearing surface, does it?—A. Comes between the bearing surface, separating the two surfaces.

Q. That prevents the metals from touching?—A. From coming in contact.

Mr. KELLOGG. Don't you have an idea that the court knows something about that?

Mr. CRAWFORD. Well, I hope it will know, by the time we get
6979 through, Mr. Kellogg. We hope to educate the court as well as counsel.

Q. That makes it necessary that the oil should have a certain strength, does it not?—A. Yes, sir.

Q. A strength to sustain the load that is put on it?—A. Yes.

Q. In the Galena oils which are furnished to railroads under their various contracts, is this element taken into account—this element of the strength of the oil that is necessary in different parts?—A. I would think so.

Q. Do they use the same oil for freight cars as they do for cylinders, for example?—A. No, sir; certainly not. There is a difference in the oil for each class of service.

Q. I show you Defendants' Exhibit 25. Have you ever seen copies of that exhibit?—A. Yes, sir.

Q. Where?—A. I have seen them at our office in Chicago, and I have sent them out to railroad men.

Q. Have you ever seen similar ones afterwards?—A. Yes; those and similar ones.

Q. Where have you seen them?—A. Along the lines of the road that I look after.

Q. Whereabouts along the lines?—A. At terminal points and oiling points, in cabooses, and in some of the offices.

Q. Where railroad employees can see them?—A. Yes; always.

Q. Have you ever seen any railroad employees looking at them?—A. Yes; I have seen the car men and the train men, while riding on their freight trains, looking at them.

Q. To your knowledge, has the Galena Company distributed other literature of an instructive character?—A. Yes, sir.

6980 Q. I hand you Defendants' Exhibit 29. Have you seen copies of that exhibit in your railroad experience?—A. Yes, sir.

Q. Where have you see them?—A. In places where railroad men could see them.

Q. Have you seen them consulted by railroad men?—A. Yes; I have seen them reading them.

Q. Where did they come from, if you know?—A. Sent out by the Galena-Signal Oil Company.

Q. You have seen them on different railroads, have you?—A. I have only seen them in my territory.

Q. I mean the different railroads that you have charge of.—A. Yes.

Mr. CRAWFORD. I offer Defendants' Exhibit 29 in evidence.

Q. I hand you Defendants' Exhibit 30. Have you seen copies of that before? If so, where?—A. I never saw it before.

Q. I show you another pamphlet [marked "Defendants' Exhibit 31"] and ask you if you have ever seen that.—A. Yes, sir.

Q. I show you Defendants' Exhibit 31. Where have you seen copies of that pamphlet?—A. In our office in Chicago.

Q. Anywhere else?—A. No, sir.

Q. Do you know of any copies of it having been distributed among railroad men?—A. Not in my territory.

Q. Were they there for the purpose of distribution in the office?—A. There was no great quantity there, but I know that they were gotten out for distribution.

Q. I show you still another pamphlet. [Defendants' Exhibit 32.] Have you seen copies of this before?—A. Yes, sir.

6981 Q. Where have you seen them?—A. In the office at Franklin and in our Chicago office, and I think that I have given a number of them away to people interested on the railroad.

Q. This pamphlet, which is marked "Defendants' Exhibit 32," you say you have given copies of away?—A. Yes.

Q. By whose direction?—A. By no one's direction. I simply sent for them, to the Galena Company, and gave them away to the traveling engineers.

Q. This was gotten up by the Galena Oil Company, was it?—A. Yes, sir.

Q. For the purpose of distribution among railroad men?—A. Yes, sir.

Q. And you yourself have distributed copies of it?—A. Yes, sir.

Q. What is the purpose of distributing this literature among railroad men?—A. To give them our ideas as to the best method of carrying on their examinations and to aid them in thinking up the best ways of doing their work from a lubrication point of view.

Q. In other words, to facilitate your educational system?—A. Yes, sir.

Cross-examination by Mr. KELLOGG:

Q. You say when you went with the Cincinnati, New Orleans & Texas Pacific Railroad twenty years ago they were not using the Galena-Signal oil?—A. No, sir.

Q. What company's oil was used?—A. I don't know.

6982 Q. You don't know whether they were buying their oil of the Vacuum Company or some other Standard company?—A. I don't know.

Q. Had you ever heard of the Galena-Signal Oil Company and the Vacuum Oil Company at that time?—A. Yes, I heard of the Galena-Signal Oil Company; I had never heard of the Vacuum Oil.

Q. The Galena Company was doing business then, wasn't it?—A. I couldn't tell you. I suppose it was.

Q. At the present time your headquarters are in Chicago, are they?—A. Yes, sir.

Q. And you have the Chicago & Northwestern Railway and Chicago, Milwaukee & St. Paul Railway, do you?—A. Yes, sir.

Q. The New York, Chicago & St. Louis Railway?—A. Yes, sir.

Q. The Chicago, Lake Shore & Eastern Railway?—A. Yes, sir.
Q. The Elgin, Joliet & Eastern?—A. Yes, sir.
Q. Any other?—A. That is all I can think of.
Q. Chicago & Western Indiana?—A. Yes.
Q. Chicago, St. Paul, Minneapolis & Omaha?—A. No.
Q. Now, the Fremont, Elkhorn & Missouri Valley and the Sioux City & Pacific are part of the Northwestern system, aren't they?—A. Now they are, yes.
Q. How?—A. At present, yes.
Q. Always have been?—A. No, they have not.
Q. The Sioux City & Pacific has been for many years part of that system, hasn't it?—A. Not when I was on it.
6983 Q. When were you on it?—A. It wasn't considered a part of the Chicago & Northwestern system when I was on it, and I naturally supposed that it was not a part of the Chicago & Northwestern.
Q. It has been owned by the Northwestern for many years, hasn't it?—A. Been owned by it?
Q. Yes.—A. I don't know who owned it.
Q. Now, many classes of service on the railroads have been very much improved in twenty years, haven't they?—A. Yes, I would think so.
Q. In the mechanical departments and in all other departments; isn't that true?—A. Well, yes.
Q. The railroad men have had systems of instruction for their men, in various branches, haven't they?—A. You will have to come a little plainer than that. I don't know just what you mean by "systems of instruction."
Q. Well, system of instructing the engineers and firemen, haven't they?—A. I never heard of them.
Q. Did you ever hear of the instruction of firemen, in order to save the waste in the use of fuel?—A. Yes.
Q. You have heard of that?—A. Well, that wasn't a meeting. The traveling fireman or the engineer would usually take care of that, to my knowledge.
Q. Has not the master mechanic on many railroads got up circulars and books of instruction, and rules, and established a system of keeping track of the amount of coal used for hauling a ton
6984 of freight a mile?—A. I have heard they did, yes.
Q. And that was for the purpose of economical and efficient service, wasn't it?—A. I suppose so. I don't know what they had in mind.
Q. You suppose that is true. Do you know anything about it?—A. I don't know anything about it.
Q. Now, railroad men have meetings on various branches of railroad operation, don't they?—A. I don't know.
Q. Did you ever hear of the master car builders' association?—A. Oh, yes.

Q. Did you ever hear of auditors' associations?—A. No.

Q. Master mechanics?—A. Yes.

Q. General managers' associations?—A. I have heard of them.

Q. And you have heard of other associations, haven't you?—A. Not in connection with railroads.

Q. Well, they meet for the purpose of discussing railroad topics, don't they—the betterment of the service?—A. I never attended one.

Q. Did you ever work on any road that used any oil other than the Galena-Signal?—A. Only as a young man and a fireman and engineer.

Q. And you don't know anything about the oil of those companies, do you?—A. Not a thing.

Q. You don't know anything about any other oil company except the Galena?—A. No.

6985 Q. Never had any experience with their oil?—A. None.

Q. You know the other inspectors, a good many of them?—A. Yes, I think I know mostly all of them.

Q. Most of them were hired from railroads, weren't they?—A. I couldn't tell you.

Q. Those that you know, were they?—A. Some of them that I know were.

Q. Did you ever get any business for the company?—A. None.

Q. Never asked for business?—A. No.

Q. Never solicited any business?—A. No.

Q. Do you have passes on all these lines of railroad?—A. Yes, on the lines I look after.

Q. I mean, the ones you have mentioned here?—A. Yes.

Q. Are you an employee of any of those roads?—A. No, sir.

Q. You receive your compensation from the Galena-Signal Oil Company?—A. Yes, sir.

Q. You travel on all these roads on passes?—A. Yes, sir.

Q. Do you travel from Chicago to New York on passes?—A. No, sir.

Q. Did you ever have a pass on any of the eastern lines?—A. No.

Q. Never had a pass?—A. No.

Q. A trip pass or otherwise?—A. No.

Q. The New York, Chicago & St. Louis, how far east does that run?—A. Buffalo.

6986 Q. From Chicago to Buffalo. That is the Nickel Plate, isn't it?—A. The Nickel Plate; yes.

Q. You have a pass on that road, have you?—A. Yes, sir.

Q. Now, you say it would be impossible to establish this good service without the cooperation of the railroad men. That is true, is it?—A. Yes; I believe it to be true.

Q. In the first place, all the statistics that are used to determine whether oil is being wasted or waste is being wasted, the amount of oil used per thousand-mile run, or per ton per mile of freight hauled, and the service on locomotives, are kept by the railroad companies, aren't they?—A. Yes, sir.

Q. You never instituted or started any such system?—A. No; but suggested a number of them.

Q. Tell me what particular one you suggested, and to what particular company.—A. The keeping of the cost per thousand miles by divisions on the Northwestern, and on the Chicago, Milwaukee & St. Paul.

Q. By divisions, you mean?—A. By divisions.

Q. In what year did you suggest that?—A. I couldn't say just the year, but during the period that I have been on the road.

Q. When did you start on those roads?—A. In 1899 or 1900.

Q. Don't you know that the Milwaukee road has kept those statistics for more than twenty years, and that Mr. McKenna testi-
6987 fied to that here the other day?—A. I know they have kept statistics.

Q. Showing the cost per mile of lubricating freight cars, passenger cars, and locomotives—the units of cost, etc.—you know that they have kept those, don't you?—A. I heard Mr. McKenna testify to that; yes.

Q. You didn't suggest that to him, did you?—A. Oh, no. I didn't say I did that.

Q. Well, all these statistics of expense in all branches of the railway service are kept by the railroads, and have been for many years, haven't they?—A. Part of them; yes.

Q. Have you made any other suggestion as to statistics which should be kept by the railroads?—A. Yes; the cost per thousand miles, by divisions, for cars on the Chicago & Northwestern road.

Q. Now, stop a moment. Take the Northwestern. Haven't they kept those statistics for more than twenty years?—A. Not the one that I have in mind; no.

Q. The Chicago & Northwestern road has not kept statistics of the cost of lubricating its cars and engines per thousand-mile run for many years?

Mr. CRAWFORD. He didn't say that, Mr. Kellogg.

WITNESS. I didn't say that.

Q. What did you say?—A. I said "by divisions."

Q. That is, keeping each division separate?—A. Yes.

Q. They put that service in at your request, did they?—A. At my request; yes.

Q. Never had had it before?—A. Not to my knowledge.

6988 Q. Well, what is the advantage of that?—A. It gives one a very fair idea as to what is being done on the various divisions.

Q. They knew what was being done on all the railroads before, didn't they?—A. Yes.

Q. And the details of their reports, before, would show not only every division but every department, wouldn't it?—A. I don't know. But you couldn't get at it as quickly. You could put your finger right on the division by having the report in front of you.

Q. As a matter of fact, in order to know what it cost to lubricate the cars, per thousand-mile run, the Northwestern road had to have

accurate statistics as to every car, and the number of miles that car ran, and where it ran, didn't it?—A. I suppose so; yes.

Q. And it was a mere matter of calculation to keep it by divisions?—A. Yes, of course.

Q. It didn't take any additional reports from the local men at all, did it?—A. Oh, yes.

Q. Every report that came in showed how many miles the car ran, and where it ran, and from what place it ran, and to what place, didn't it?—A. Yes; but it took extra work to do that.

Q. Yes, but that always showed, didn't it?—A. The cost by divisions didn't.

Q. No, but the information was in the railway office.—A. I don't know anything about that.

6989 Q. Have you ever made any other suggestions as to statistics?—A. Yes.

Q. What were they?—A. Suggestions that were sent to the car men and engine men along the line, in the proper method and the economical use of lubricating oil.

Q. Statistics?—A. No.

Q. I asked you if you ever made any other suggestion as to keeping statistics in the offices of railways?—A. No.

Q. That is all the suggestion you ever made?—A. Yes, sir.

Q. So that practically all the statistics kept, which show the cost of lubricants and waste per thousand mile run per ton of freight hauled one mile, have been kept by the railroads for many years, and are now kept by the railroads, isn't that true?—A. I suppose it to be true. I don't know.

Q. So they have the information in their office so that they can find out whether there is an extravagance in any one department?—A. I should think so.

Q. Now, isn't that true as to all branches of railroad service?—A. I don't know.

Q. Don't you know as a matter of common knowledge that the railroad company knows, by every division, by every engine, the amount of fuel it takes per mile of run for hauling a certain number of tons a mile?—A. No, I don't know it, but I would think it would be a good idea on a well-regulated railroad.

6990 Q. Well, that is a matter of common knowledge among railroad men that such statistics are kept?—A. I don't know. I am no railroad man.

Q. You have knocked around among railroad men quite a bit, haven't you?—A. Yes; a whole lot.

Q. And you know that, generally speaking, railroad men are a very bright, efficient, able lot of men?—A. Yes, sir; very fine fellows.

Q. And they are right up to date in the economies and in the service of their roads, isn't that true?—A. In a number of particulars, yes; but they are very weak on some others.

Q. Yes; some men, I suppose.—A. Some men; yes.

Q. There have been great economies in all branches of railroad service in the last twenty years, haven't there?—A. I can't tell that. I know there have been great economies in the use of oil.

Q. Your knowledge is confined to that subject?—A. Yes; that is my business.

Q. You know that there has been great improvement in the railroad service, don't you, in twenty years?—A. I don't remember back enough about it, twenty years ago; about ten I could tell you a whole lot more.

Q. Well, there has been a good deal of improvement in ten years, hasn't there?—A. Yes.

Q. Larger cars, larger and better engines, lowering of grades, reduction of dangers by installation of systems of signals, and
6991 various other improvements, haven't there?—A. Oh, yes.

Q. The result is that freight is hauled very cheaply in this country, isn't it—rates are very low?—A. I hear the rates are low.

Q. You don't know anything about the improvements in lubricating, on railroads where the Galena-Signal Company has not sold the oil, do you?—A. No.

Q. You know there is a great deal of lubricating oil made that is not made by the Galena-Signal Company, don't you?—A. I don't know that.

Q. You don't know anything about the lubrication of other machinery—street cars, marine lubrication, or anything?—A. I know that it is being lubricated

Q. You don't know who is doing it?—A. No.

Q. Or what companies?—A. No.

Q. Does it require as high a grade of lubricants for marine engines as it does for railroads?—A. No; I wouldn't think so.

Q. Then, the experts who have testified that it does require a higher grade are mistaken, are they? Have you ever had any experience on that line?—A. With marine engines?

Q. Yes; marine lubrication.—A. No; I am simply taking the conditions of the marine engine and the condition of the express locomotive into consideration, while in service.

Q. You never had any experience with marine lubrication?—A. No.

Q. Do you think the lubrication on the Northwestern road
6992 has been very satisfactory during the years you have been there?—A. They tell me that; yes.

Q. Was it, in 1905 and 1906?—A. That is what they say, yes.

Q. Do you know of any complaints?—A. Oh, there are always complaints coming, from every railroad.

Q. They are always kicking?—A. Always.

Q. Did they make any particular kick in 1905 and 1906, that you recollect of?—A. Not to my knowledge, no.

Q. Just as good as any other road, as far as you know?—A. As far as I know, yes.

Q. Engines, cars, and passenger cars?—A. Yes.

Q. Do you know that the Chicago & Northwestern used car oil on their engines in 1905 and 1906?—A. Oh, yes, certainly.

Q. Is that customary?—A. Yes, sir.

Q. Do all railroads use car oil on their engines?—A. I don't know about all the railroads.

Q. Did they buy any engine oil at all, in 1905 or 1906, of the Galena-Signal Oil Company?—A. I don't know. I couldn't testify as to that.

Q. Car oil is 10 cents a gallon cheaper than engine oil, isn't it?—A. Yes.

Q. You don't know whether they bought any of the Galena-Signal Company at all or not?—A. No, I don't.

Q. And you don't know whether the car oil gave just as good service as the engine oil or not?—A. Well, I had no complaint from the Northwestern line.

6993 Q. You don't keep very close supervision of the Northwestern, if you don't know whether they used car oil or engine oil, for two years, on their engines, do you?—A. Oh, I know that they used car oil. I didn't say that they didn't use car oil. They have used car oil for the last two years on their engines.

Q. And used no engine oil?—A. I don't know.

Q. You don't know whether they did or not?—A. I don't know whether they used some engine oil with that, but I know that car oil has been in general use on those engines.

Q. Do you know whether they have used any engine oil on their engines in the last four years?—A. I couldn't say.

Q. You don't know?—A. No.

Q. Well, you don't keep so very close track of it.

Mr. ROSENTHAL. Was that a question or an answer of yours?

Mr. MILBURN. Double header.

Mr. KELLOGG. Double header.

Q. How many times have you been over the Northwestern road in the last three years?—A. I couldn't say just the number of times that I have been over the road, but, unless I am called away on some such work as this, I am continually going over both the Milwaukee and the Northwestern, and the Nickle Plate road, and the other roads in my territory.

Q. Traveling all the time?—A. Traveling all the time.

Q. And you don't know whether they have used any engine oil or not? Why should they use engine oil, if they can use car oil,

6994 which is 10 cents cheaper?—A. The car oil is intended for the lubrication of the locomotive.

Q. What do they buy engine oil for, then?—A. Did I say "car" oil?

Q. Yes.—A. Well, I beg your pardon. I meant to say engine oil.

Q. Yes; that is what I thought.—A. It should have been "engine" oil. The engine oil is made heavier, so that it will pass down through the driving boxes and trucks more rapidly, and reach the journal quicker than the car oil. But the car oil will go down

through the waste to the journal and give good results, but, on account of it being slightly lighter, it doesn't get down so quick.

(The hearing was here adjourned until the morning of Friday, May 29, 1908, at 10.30 o'clock.)

6695 722 CUSTOM-HOUSE, NEW YORK CITY,
May 29, 1908—10.30 a. m.

The hearing was resumed before the special examiner, Hon. Franklin Ferris, at the above time and place.

Present: On behalf of the petitioner, Mr. Frank B. Kellogg, Mr. Charles B. Morrison, Mr. J. Harwood Graves; on behalf of the defendants, Mr. Moritz Rosenthal, Mr. Frank L. Crawford, Mr. W. Cleveland Runyon.

WILLIAM WALSH recalled, and his cross-examination resumed.

By Mr. KELLOGG:

(The last question asked the witness, and the answer thereto, were read.)

Q. Now, you say the engine oil will pass down through the boxes to the journal quicker?—A. Yes, sir.

Q. As a matter of fact, they don't use engine oil on the trucks of the engines, do they, at all?—A. Oh, yes; on the engine truck, always.

Q. Always?—A. Always.

Q. Isn't it a fact that most all roads use car oil on the trucks, engine oil on the engine machinery, and valve oil on the valves and cylinders?—A. Not on the trucks; no.

Q. They do not?—A. No.

Q. You say that the roads universally use engine oil on the trucks of the engines?—A. Well, they use the same oil on
6696 the trucks of the engine that they use on the driving-boxes of the engine.

Q. Do they use the engine oil, the 28-cent-a-gallon engine oil, on the trucks of the engine, or do they use the car oil?—A. On one road that I have they use engine oil; on the other road they use the car oil.

Q. Which one uses the engine oil on the trucks of the engines?—A. The Chicago, Milwaukee and St. Paul.

Q. Where do they use the car oil, then, on the engine?—A. For the packing of the engine tender boxes.

Q. I am talking about the engine itself.—A. I don't know that they use any car oil on the engines on the Chicago, Milwaukee and St. Paul.

Q. Now, you swear that the Chicago, Milwaukee and St. Paul road uses nothing but engine oil on its engines?—A. So far as I know; yes.

Q. Do you know whether they do or not?—A. Well, they use car oil and engine oil.

Q. And engine oil.—A. They use car oil for the packing of the tender boxes——

Q. I am not talking about tender boxes, I am talking about the engine boxes.—A. So far as I know they use engine oil on the engines.

Q. Do you know whether they do or not?—A. I know that if there is any engine on the Milwaukee road that uses car oil it must be an engine of little consequence, such as a yard engine.

6997 Q. And do you swear that on the roads you are familiar with, excepting the Northwestern, they use engine oil on the journal of the trucks?—A. Yes; on the engine truck.

Q. On the engine trucks they use engine oil?—A. Yes; so far as I know.

Q. And they don't use car oil?—A. No.

Q. Now, the Northwestern doesn't use anything but car oil?—A. Car oil; yes.

Q. They get just as good service as the other roads?—A. No; I don't think so.

Q. I thought you said last night that the service on the Northwestern road was excellent and perfectly satisfactory?—A. I did; but I made no comparison at the time.

Q. You don't think their service is as good as the other lines?—A. I don't think they make as many miles to a pint of lubricating oil—that is, the engine or car oil—as the Milwaukee does.

Q. That is, you don't think they make as many miles per pint of lubricating oil?—A. I don't think they make as many miles to a pint of car oil as the Chicago, Milwaukee and St. Paul makes to 1 pint of engine oil.

Q. It costs the Chicago and Northwestern less money to lubricate than it does the Milwaukee, doesn't it?—A. Oh, yes.

Q. They use car oil costing 18 cents, as against the Milwaukee's engine oil costing 20. Now, isn't it a fact generally that the railroads do not use engine oil on the trucks of their engines?—A. I can

6998 only state for the two roads that I am looking after, Mr. Kellogg.

Q. What does the Nickel Plate use?—A. The Nickel Plate, so far as I know, uses engine oil.

Q. Do you know whether it does? I am not talking about "so far as."—A. I couldn't say positively that they use engine oil exclusively.

Q. Can you say positively that they use it at all on the trucks?—A. No.

Q. You don't know?—A. I don't know.

Q. You don't keep very close supervision of the oiling of the Nickel Plate road, then, do you, if you don't know whether they use engine oil at 28 cents a gallon or whether they use car oil at 18 cents?—A. Well, that is up to the Nickel Plate road. It doesn't matter much what they use.

Q. It doesn't matter much?—A. No; I am watching the cost per thousand miles run.

Q. What does the E., J. & E. use?—A. They use both engine oil and car oil.

Q. They use car oil on the trucks, don't they?—A. They use car oil for the sponging of cellars.

Q. What is that?—A. It is for the lubricating of the journal.

Q. They use car oil for the lubrication of the journals on the trucks?—A. Underneath, yes.

Q. On the trucks?—A. Underneath.

Q. Underneath the engine, of course?—A. Underneath the engine, and underneath the axle and journal, yes.

Q. That is where the trucks would be—underneath the
6999 engine, isn't it?—A. I mean to say that the car oil is placed underneath the journal, on the under side of the journal.

Q. Of the trucks?—A. Of the trucks.

Q. So it is always, isn't it, on all cars?—A. Yes.

Q. Why, certainly.—A. Of course.

Q. And they don't use any engine oil on the trucks at all?—A. Yes; I understand that they use the engine oil on the top.

Q. On the top?—A. Yes.

Q. They do?—A. Yes.

Q. On the trucks of the engine?—A. Yes.

Q. You don't inspect the roads, then, to see what kind of oil they use on different parts of their engines, etc.?—A. I am interested in the——

Q. I don't care what you are interested in; that is not what I asked you. I ask you if you do inspect it.—A. Yes.

Q. You do?—A. Yes.

Q. You didn't know that the Northwestern were using car oil, then, did you?—A. Certainly, I did.

Q. But you don't know what the Nickel Plate is using?—A. I know they are using both oils. I know they are using Galena oil, and that is all I care about.

Q. Using what?—A. Galena oils. Whether it is engine or car oil, it makes no difference in the lubrication of the engines.

Q. One is just as good as the other, practically?—A. Both oils will lubricate the engine.

Q. One is practically as good as the other?—A. No.

Q. What is the Chicago, Lake Shore & Eastern using?—
7000 A. About the same as the E., J. & E. They are both under one management.

Q. They are using car oil on the trucks of the engine, and engine oil for the rest of the machinery?—A. For the sponging of the engine, yes.

Q. You say they use car oil for the journal boxes of the trucks under the engine, underneath, and engine oil on top of it?—A. Yes. They may use some car oil on the top, too.

Q. Now, take the trucks—I am not speaking about the driving-wheels, but take the trucks; aren't they packed substantially the same as the trucks to a car?—A. The box is different, of course, on an engine truck than on a car box.

Q. But they are packed about the same way, substantially?—A. About the same way, yes.

Q. By putting the waste underneath?—A. Yes.

Q. And that is the way you oil it?—A. That is one of the ways we oil it. We oil it two ways. We oil it from the bottom and from the top.

Q. You don't do that on cars?—A. No.

Q. What do they use on the engines of the Chicago, St. Paul, Minneapolis & Omaha?—A. I don't know.

Q. What did they use, when you had that road?—A. As far as my memory goes, they used engine oil.

Q. On the trucks?—A. Yes.

Q. What year?—A. I couldn't say.

Q. What year were you with them?—A. I couldn't say now, without referring to my notes. I don't remember just when.

7001 CALVIN SKINNER, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. ROSENTHAL:

Q. What is your full name?—A. Calvin Skinner.

Q. Where do you live?—A. Columbus, Ohio.

Q. What is your occupation?—A. I am at present superintendent of the Sciota Valley Traction Company.

Q. How long have you been superintendent of that company?—A. One year the 26th day of this month.

Q. What was your business before that?—A. Just previous to that I was master mechanic of the same line.

Q. Have you ever had any railroad experience?—A. I have been railroading since I was 13 years old.

Q. How old a man are you now?—A. 53, just about.

Q. With what railroad companies have you been connected?—A. I commenced with the Pittsburg, Cincinnati & St. Louis Railway, which is now a part of the Pennsylvania line, as machinist's apprentice; machinist, locomotive fireman, and locomotive engineer.

Q. How long were you with that road?—A. 22 years.

Q. When did you quit?—A. In 1890.

Q. Where did you then go?—A. I went with the Chicago & Erie Railroad, as road foreman of engines.

7002 Q. And then where?—A. From there to the Ohio & Mississippi Railroad, as general foreman of shops and master mechanic.

Q. Located where?—A. At Washington, Indiana.

Q. Then where?—A. From there to Ludlow, Kentucky, on the Queen & Crescent, as general foreman of shops; on the same system, at Birmingham, Alabama, on the Alabama-Great Southern Railroad, as master mechanic.

Q. When were you with the Alabama Southern?—A. From 1895 to 1899.

Q. Where does that road run?—A. It commences at Chattanooga, Tennessee, and terminates at Meridian, Mississippi.

Q. How much of a road is it in mileage?—A. 307 miles.

Q. Have you ever had any experience in the use of Galena Company oils in your railroad experience?—A. Yes, sir.

Q. When did you first come in contact with the use of those oils?—A. With the Alabama-Great Southern Railroad in 1895, particularly, that I can recall.

Q. And under what circumstances?—A. I found they were operating under a contract with the Galena Oil Company, and using their oils for lubrication of cars and engines.

Q. Do you know how long that contract had been operative?—A. No, sir.

Q. With what success were Galena oils used on that road?—A. Satisfactorily, during the time I was there.

Q. That was how many years?—A. Four.

Q. Did you come in contact with the Galena expert service
7003 during that period of time?—A. Yes, sir.

Q. Please tell us about that.—A. There was employed there as an expert a man by the name of Joseph Gettrust, whose duties, I found, were to look after the economical oiling of the locomotives and cars. He would associate himself with the oilers, both in the shops and in the car yards, and teach them the way to avoid waste of oils, and the idea of supplying what was apparently a sufficient amount of oil to lubricate the cars and engines and not cause waste.

Q. Did you come in contact with the expert, in connection with your particular department?—A. Yes, sir, he consulted me on all trips over the line.

Q. Your position was what?—A. Master mechanic.

Q. In a general way, what does that mean?—A. That means that you are responsible for and have charge of the maintenance, care, etc., of the operation of the locomotives and cars.

Q. Was there ever any consultation between you and the Galena expert, with respect to the method of construction of the different parts, in so far as they had any relation to the matter of lubrication?—A. Not that I know of. I can't recall any, no, sir.

Q. How frequently did you consult with the Galena expert?—A. I am not able to state. On each one of his visits there. I can not recall how often that would be; two or three times a year.

7004 Q. You went from that road to what road?—A. To the Toledo, St. Louis & Kansas City.

Q. What position did you take there?—A. Master mechanic.

Q. Where does that road run?—A. From Toledo to East St. Louis, Illinois.

Q. From Toledo, Ohio?—A. Yes, sir; Toledo, Ohio.

Q. To East St. Louis, Illinois. And what was the situation in respect to lubrication when you first came there?—A. I found in use there what was called the Havemeyer oil, as near as I can recall.

Q. What year was that?—A. In February, 1899.

Q. You found there an oil which you say was called the Havemeyer oil?—A. Yes, sir.

Q. What was that being used for?—A. Lubrication of locomotives and cars.

Q. With what success?—A. It was not satisfactory to me in the way of cylinder oil; considerable groaning and grinding, and dragging of the bearing parts—the cylinders and the valves.

Q. What did you do about it?—A. I consulted the receiver on the subject and arranged for a contract with the Galena Oil Company.

Q. Did you make a contract with the Galena Company?—A. Yes, sir; the receiver did.

Q. On what basis?—A. As I recall it, it was on the basis of 10 per cent less than the cost which the Havemeyer people guaranteed.

Q. 90 per cent of the previous cost of lubrication?—A. Yes, sir.

7005 Q. Did you make any comparisons between the service before the time the Galena-Signal was used and after it was used?—A. No, sir.

Q. What was the result of the introduction of the Galena lubrication?—A. It abolished the trouble of dry cylinders, and we were able to reduce the consumption of fuel considerably by reason of properly lubricated cylinders, to my recollection.

Q. Tell me about that, please.—A. There are very few points that I can remember other than that we were unable, previously, to run the engines through on the western division, from East St. Louis to Frankfort, on one tender of coal. After we had proper lubrication the engines, cylinders, and valves were again restored to proper condition; we were enabled to run our passenger trains through with one tender of coal from East St. Louis to Frankfort.

Q. Now, let me see. Under the old system of lubrication you found that you could only run your engine on one tender of coal from East St. Louis to where?—A. To Charleston, Illinois.

Q. How far was that?—A. As I recall, 132 miles.

Q. And after the introduction of the use of Galena lubrication you found that you could run your engine with one tender of coal from East St. Louis to where?—A. To Frankfort, Indiana.

Q. How far was that?—A. 240 miles, I think.

Q. What was the other mileage?—A. 132.

Q. So that by reason of the change of lubrication in a run of 240 miles you were able to run about a hundred miles farther

7006 on one tender of coal than you theretofore had been?—A. That might be misconstrued wrong. What I wish to say is that we could not run them through on one tender of coal the 240 miles with the old lubrication and the condition it kept the cylinders and valve seats in. We didn't use the one tender of coal completely from East St. Louis to Charleston; I don't want that to be inferred. But we were enabled to run our engines clear through. If we wanted to run it clear through from East St. Louis to Frankfort we couldn't do it on one tender of coal under the old conditions, but with the improved conditions, and getting our cylinders in proper shape, and the use of proper lubrication, we were able to run through on one tender

of coal. In other words, we had to cut them out at Charleston in order to make a successful run.

Q. That is, under the old system of lubrication?—A. Yes, sir.

Q. Did you make any calculation as to the number of miles per ton run under the old lubrication, and the number of miles per ton run under the Galena lubrication?—A. As I understand it, it ranged along between 21 to 25 miles per ton.

Q. When?—A. Under the old arrangement. And under the new, we reached the point of running an average of about 35 miles per ton.

Q. Did you have any trouble in introducing that change? Was there any difficulty with your associates in the introduction of that change?—A. I was questioned as to my ability to ever run the
7007 engines through from East St. Louis to Frankfort on one tender of coal. They thought it was out of the question. I was told it was an impossibility.

Q. You were told that that had never theretofore been done, were you not?—A. Yes, sir.

Q. But with the introduction of the Galena lubrication, you succeeded in doing it?—A. Yes, sir.

Q. Was there any expert service introduced by the Galena on that line?—A. Yes, sir; I used the expert service in bringing out the results—laid the situation before them and had them arrange the oil.

Q. Tell me just what you and the Galena expert did, when Galena oils were introduced on this road?—A. The expert was instructed to visit the roundhouses, instruct the men whose duty it was to oil the locomotives and oil the cars, and teach them the Galena methods of oiling, as I had used on the Alabama-Great Southern.

Q. Do you remember the name of that expert?—A. The same that was on the Alabama-Great Southern; Joseph Gettrust.

Q. Did you see him do what you have just told us he was instructed to do?—A. No, I can't say that I did. I know that the results were brought out.

Q. Do you know that he went over the line?—A. Yes, sir.

Q. Do you know how much time he spent there in the first instance, when he first came?—A. I couldn't recall exactly.

Q. How long were you with the Toledo, St. Louis & Kansas City Railroad?—A. About 18 months.

7008 Q. And were Galena oils used for lubricating purposes during all that time?—A. After they were introduced; yes, sir.

Q. How long a contract was made there, do you remember?—A. I can't recall; no, sir.

Q. During the 18 months that you were there was the lubrication service as introduced by you in connection with the Galena entirely satisfactory in its results?—A. Yes, sir.

Q. Do you know of any other lines of saving that were accomplished by the introduction of Galena oils on that roal, besides the more economical use of coal?—A. Well, what I have referred to, in the care of the valve seats and the cylinders.

Q. Explain that a little more in detail, please.—A. With this inefficient lubrication you will cut, scrape, or otherwise injure the two bearing surfaces of the valve seats and the cylinders, causing a dragging movement which reduces the energy of your locomotive, the tractive effort, pulling power, and requires more labor in the shop in order to keep your engines in anything like proper shape.

Q. Were you troubled any with hot boxes?—A. Not that I recall.

Q. What road was it that you first started with, the Pennsylvania?—A. Yes, sir. It was not the Pennsylvania at that time; it is now.

Q. And you worked up to be a locomotive engineer on the Pennsylvania road?—A. Yes, sir.

Q. What about the use of oil for lubricating purposes in those days?—A. As a rule it was the custom for a man to pour
7009 a quart, or somewhere thereabout, around his engine before he started, to be sure that he had everything covered, without any regard to economy.

Q. Where was the oil stored in those days, and how did the engineers get it, and how did they apply it, as compared with now?—A. It was stored in an oil room the same as it is now, materially, and they drew whatever they desired and used what they desired.

Q. That is, there was no check upon the——A. No restriction at all.

Q. An engineer or a fireman, if he did the oiling, was permitted to exercise his own judgment as to how much oil he should take?—A. Yes, sir.

Q. Have there been improvements in the methods of packing boxes during these years?—A. Very much so.

Q. Has that resulted in a more economical use of oil?—A. Yes, sir.

Q. You were not with the Pennsylvania when the Galena undertook the lubrication of that road, were you?—A. I wouldn't know anything about that, in the position I held there.

Q. What do you say generally of the value of the Galena expert service, based upon your long railroad experience and your contact with that service?—A. I have no hesitancy in making the statement that I firmly believe it has reduced the cost of oiling at least 300 per cent.

7010 Q. You are now the superintendent of the Sciota Valley Traction Company, at Columbus, Ohio?—A. Yes, sir.

Q. What is that system?—A. It is a third-rail electric line operating freight and passenger business between Columbus, Ohio, and Lancaster and Chillicothe, Ohio.

Q. What is its mileage?—A. About 80 miles all told.

Q. It is an interurban electric street railroad?—A. I wouldn't call it a street railroad; we operate over a private right-of-way.

Q. You use a third rail, do you?—A. A third-rail transmission line, yes, sir.

Q. How long have you been connected with that company?—A. Since May, 1904.

Q. You started there in what capacity?—A. I started there in the capacity of simply an employe in the shop, when they were assembling the cars, putting them together, with the arrangement that I was to take charge as master mechanic when the road was taken over by the operating company.

Q. You went with that road, then, before it began operating at all?—A. Yes, sir.

Q. What is the lubrication that is used there in the running of your cars?—A. We use the Galena oil.

Q. How long have you been using the Galena oils?—A. Since we started, in 1904.

Q. With what measure of success?—A. Very satisfactory to me.

7011 We operated at a cost of about 25 cents per thousand miles. It gradually came down, and we are operating now for about 21 or 22 cents per thousand miles.

Q. How heavy are your motor cars?—A. They weigh 42 tons.

Q. And they are propelled by what?—A. By motors built by the General Electric Company, 125 horsepower, there being four of them to a car.

Q. What do your schedules average per hour?—A. Do you mean in the matter of speed?

Q. Yes, sir.—A. We operate at a speed of about 45 to 50 miles an hour when running.

Q. And each of your cars makes an average of how many miles a day?—A. They average about 390 miles each day.

Q. And how much each month?—A. They average about 7,000 each month.

Q. Each car averages about 7,000 miles a month?—A. Yes, sir.

Q. What do you say your cost of lubrication per thousand miles has been?—A. Last year our records show, I think, that it was 24 cents and some hundredths. At present it is running along about 21 cents.

Q. Who introduced the use of Galena oils there for lubricating purposes?—A. I couldn't say. I found it purchased there when we started, by the people who put the road together—I believe it was W. G. Baker & Company of this city.

Q. What sort of freight do you haul?—A. We haul merchandise, and some carload lots of different kinds of freight usually hauled locally by a line running through the country.

Q. Do you haul any tank cars of oil?—A. No, sir.

7012 Q. Your directors are all local men out there, are they not?—A. They live there and in Cincinnati.

Q. And you are using Galena lubrication simply on its merits, are you not?—A. Yes, sir.

Cross-examination by Mr. KELLOGG:

Q. Mr. Skinner, you think that the Galena oils have reduced the cost of lubrication about 300 per cent?—A. Yes; I do think so.

Q. Will you tell me how you are going to reduce anything 300 per cent? It must be costing 200 per cent less than nothing, then.—A.

What I had in mind when I made that remark was the volume of oil used, rather than the cost.

Q. How are you going to reduce the volume of oil used 300 per cent?—A. Maybe I ain't up in per cent enough to discuss it along that line.

Q. I guess you are a little off on percentages.—A. Yes.

Mr. ROSENTHAL. It should be one-third. You meant 33⅓, did you not?—A. Yes; that is what I meant.

Q. Reduced it one third; you mean 33⅓ per cent?—A. Yes.

Mr. ROSENTHAL. No; he don't.

Q. If you reduce anything one-third that is 33⅓ per cent, isn't it?

Mr. ROSENTHAL. That is not what he said. Reduced it to one-third of what it was.

Mr. KELLOGG. Do you want to testify, or do you want the witness to?

Mr. ROSENTHAL. No; but, then, I prefer you would not waste
7013 a lot of time on something you know just as well as the witness. You know what the witness means.

Mr. KELLOGG. No; I don't.

Q. What do you mean?—A. I mean that the Galena Oil Company has reduced the amount of oil used, and the consequent cost, very materially.

Q. What percentage? One-third?—A. I wouldn't be able to state exactly, but I am satisfied it would run around what I meant when I made that statement, about 300 per cent or one-third.

Q. About one-third?—A. Yes, sir.

Q. That is, you think the use of Galena oil has reduced the cost of lubrication about one-third?—A. I would be willing to make that statement.

Q. Have you any statistics on that subject at all?—A. Not to offer; no, sir.

Q. You never have made any figures on it?—A. I have seen figures on it, very closely; yes, sir.

Q. Where did you see them?—A. In the records of different railroad companies.

Q. What railroad companies?—A. The railroads I have been connected with, that I have mentioned.

Q. Name one of them.—A. The Alabama Great Southern, for instance.

Q. The Alabama Great Southern were using Galena Oil when you went there?—A. Yes, sir.

Q. They never used anything else, as far as you know,
7014 had they?—A. I couldn't tell you what they had used; they had used something else; yes, sir; I presume so.

Q. You don't know what they had used?—A. No, sir; I don't.

Q. You don't know whether they had ever used any other than the Galena's, do you?—A. No; I don't really.

Q. You don't know, then, whether the use of the Galena oil had reduced the cost at all or not?—A. The methods of operation of the

Galena oil, the handling of the Galena oil, was what I had reference to.

Q. The methods?—A. Yes; the way it was wasted previous to the adoption of their method.

Q. That was a matter of saving of oil, wasn't it?—A. Yes, sir.

Q. It wasn't any merit of the oil itself?—A. In that case I wasn't speaking of the merits of the oil; no, sir.

Q. Now, take the Toledo, St. Louis & Kansas City line. When you went there you say they were using Havemeyer oil?—A. As I recall it, yes, sir.

Q. What is the Havemeyer oil?—A. Really I couldn't give you any statistics on it any more than that was the name it was known by.

Q. What?—A. That is the name it was sold in, I presume; that is what was on the records when I went there.

Q. What company made it?—A. I couldn't tell you.

Q. What company sold it?—A. The Havemeyer Company, as I understood it.

Q. Who were they?—A. I don't know a thing about it.

Q. You didn't think the valve oil was satisfactory?—A. It was not.

7015 Mr. ROSENTHAL. That is one of the subsidiary companies of the New York Lubricating Company.

Mr. KELLOGG. No; I think it is one of the Standard Oil.

Mr. CRAWFORD. No; it is a New York company.

Q. Well, you didn't think the valve oil was satisfactory?—A. It was not.

Q. What system of inspection and supervision over the oiling did the Toledo, St. Louis & Kansas City Company have when you went there?—A. Just the ordinary.

Q. No special supervision?—A. Not that I know of; no, sir.

Q. And did you make any tests of the two kinds of oil other than you know that under the Galena system it was more satisfactory?—A. I was governed by the condition of engines and the way they operated.

Q. You don't know whether it was the system of oiling or whether it was the oil itself?—A. I am not prepared to say.

Q. Now, you say you got your engines so that you could run about 35 miles on a ton of coal?—A. To the best of my recollection, yes, sir.

Q. And previous to that you could run about how many?—A. The records show 21 and 25.

Q. Been any improvement in your engines?—A. In the way of getting the cylinders to run better, and the valve seats.

Q. Has there been any improvement in fixing up the engines?—A. The engines were put in shape, the same as they are any place else.

7016 Q. If an engine is out of shape or out of repair, it will use more coal, won't it?—A. It depends upon what part of the engine is out of shape.

Q. What part of it would have to be out of repair?—A. Something that interfered with the draft and the use of the steam in operation.

Q. The fire boxes?—A. Yes, sir.

Q. Be out of shape?—A. Yes, sir.

Q. Now, what do you call these things that run through the chest—I mean that run through the——A. Oh, I will help you out—the flues?

Q. The flues; yes; that is what I was trying to think of. The flues have got to be kept in repair and cleaned, haven't they?—A. Yes, sir.

Q. And if they were out of repair it would affect the consumption of coal, wouldn't it?—A. It would; yes, sir.

Q. The road was in the hands of a receiver when you went there, wasn't it?—A. Yes, sir.

Q. Did you do a good deal toward fixing up the engines?—A. I just used the same force they did, and went along about the same lines; there was no extra expenditure made.

Q. Did you find the engines in good condition?—A. Fairly.

Q. Fairly good condition?—A. Yes, sir; with the exceptions that I tell you; I got the cylinders and valves in better shape than they were.

Q. You are not prepared to say that the improvements you
7017 made on the engines had something to do with saving the coal, are you?—A. Yes, sir.

Q. It did not?—A. It did.

Q. Well, that is what I say. The improvements you made on the engines had something to do with saving coal?—A. It did.

Q. And fixing up the engines when they were out of repair?—A. I am speaking entirely of the valve seats and cylinders, with reference to this question.

Q. In what year did the engines run 21 miles per ton of coal?—A. In the latter part of 1899 and the early part of 1900.

Q. 21 miles per ton of coal?—A. The records previous to 1899, just some few years, I couldn't give you the exact number.

Q. When you went there, they were running about 25, you say?—A. 21 to 25, that is what the records show. I just took their records for it. I wasn't there to see.

Q. As master mechanic of that line, did you use any influence with the men for saving coal?—A. Yes, sir.

Q. Did you put in force any regulations as to saving coal on their engines?—A. Nothing material.

Q. Nothing at all?—A. Nothing but just talked to the men, the same as any other men.

Q. Talked to the men about saving coal?—A. Yes, sir.

Q. A very great saving in coal has been made by the manner of firing and the use of the coal when you are running into terminals, hasn't it?—A. Yes, sir.

Q. Did you do some of that work on that line?—A. Not very much of it.

7018 Q. Did you do any?—A. Some little, I presume; yes, sir. I can't just recall. I didn't give it any particular attention. The condition of the engines, the valves, and the cylinders was, in my opinion, the trouble with the engine.

Q. That might have had something to do with part of the saving?—A. It did.

Q. Well, I mean the directions you gave the men about saving coal may have had something to do in the saving of coal?—A. I don't believe that it could, under the adverse conditions.

Q. It would have, under ordinary conditions, wouldn't it?—A. Yes, sir.

Q. How many years ago was it that you were an engineer on the Pennsylvania road?—A. From 1876 to 1890.

Q. In the early years, on the Pennsylvania road, in 1876, there was very great extravagance in the use of lubricating oil, wasn't there?—A. I won't say there was very great extravagance; there was waste, yes.

Q. There was waste in the using of it?—A. Yes. There wasn't any method of doing it; no limit to it.

Q. From that time to 1890 there was a very great improvement on the Pennsylvania road, wasn't there?—A. Not materially; no, in the use of oils, if that is what you refer to.

Q. Then there were no improvements in the method or manner of lubricating the Pennsylvania engines from 1876 to 1890?—A. That is a pretty broad question. "Pennsylvania engines" covers a lot of territory.

Q. Was there any improvement on the part that you ran

7019 on?—A. For what purpose?

Q. In the method of lubrication.—A. Not that I recall; no, sir.

Q. No improvement at all?—A. Not that I recall; materially, no.

Q. No decrease in the amount of oil used, between 1876 and 1890?—A. I am not prepared to state that.

Q. You don't know whether there was or not?—A. Except so far as it came under my notice, which was not very much as an engineer.

Q. Did you ever see any of the statistical records of the consumption of oil on the Pennsylvania road during those years?—A. There was a performance sheet put up that indicated the number of quarts or gallons of oil, but I can't just recall clearly now.

Q. The Pennsylvania kept statistics, then?—A. Yes, sir.

Q. You don't say there was not an improvement during that time?—A. No; I can't say that there wasn't.

Q. From 1890 to 1896 do you know anything about it?—A. Not at all.

Q. The only outside oil that you have ever had any experience with was this Havemeyer oil? All other roads used the Galena?—A. Yes, sir.

Q. From East St. Louis—when you went there they were running 132 miles? That was a division, was it?—A. Yes, sir.

Q. The next division was 108 miles farther on?—A. 116, I
7020 think, to be accurate about it, as near as I can recall. Those are things I can not state positively.

Q. The first division was 116 miles?—A. No; the first division, from East St. Louis to Franklin, was 132, and the other 116.

Q. You don't pretend to say that on the same amount of coal you ran 248 miles that you ran 132 on before?—A. No, sir.

Q. You ran the engines—on account of the bad lubrication of the engines and their condition, you were unable to run farther than the first division?—A. Yes, sir.

Q. You would not run an engine except one division, anyhow, would you? That is, you would not run it 10 or 15 or 30 miles beyond the division and stop there?—A. No, sir.

Q. So that with the improvements in the engine and the improvement in lubrication, you were enabled to run to the next division?—A. Yes, sir.

Q. But it was not all due to the lubrication, was it?—A. I haven't stated so, and I haven't stated it wasn't. It was brought about materially by the lubrication, in my opinion.

Q. That was the material factor?—A. Yes, sir.

Q. But there were other factors in it, weren't there?—A. There must have been, yes, sir.

Q. What is the name of the electric company that you are with?—A. Sciota Valley Traction Company.

Q. You have a contract with the Galena-Signal Oil Company?—A. No, sir.

7021 Q. Have no contract with them?—A. No, sir. We are purchasing our oil by the barrel.

Q. On a gallonage basis?—A. Gallon basis, yes, sir.

Q. What price do you pay?—A. 20 cents a gallon for car oil.

Q. What is the name of the oil? What do you call it?—A. Galena car oil.

Q. You pay 20 cents a gallon for the car oil?—A. Yes, sir.

Q. Is it the same kind of oil they use on freight cars or passenger cars on steam roads?—A. I don't know. I am not in a position to state what they distribute out at all. I know it is Galena car oil that we are using.

Q. There are two kinds of car oil, aren't there?—A. I don't know.

Q. There is a coach oil and a car oil, isn't there?—A. I don't know, sir.

Q. Well, this is the ordinary car oil that they sell all over the country?—A. The ordinary car oil, 20 cents per gallon.

Q. Is that in bulk or by barrel?—A. By barrel.

Q. That is the standard price that they charge all companies, isn't it?—A. I couldn't say.

Q. You don't know what they charge railroads?—A. No, sir.

Q. You never have had any experience in that?—A. Any experience with what?

Q. With what they charge the railroads.—A. I wouldn't be in a position to know what they charge the railroads.

7022 Q. Do you have any mileage guaranty?—A. No, sir.

Q. Just buy the oil at 20 cents a gallon?—A. Yes.

Q. Who looks after the use of the oil to see that it is not wasted?—A. I do.

Q. The Galena inspectors don't have anything to do with your line?—A. No, sir.

Q. And you have succeeded in reducing the number of pints per thousand mile run?—A. Yes, sir.

Q. You don't know that the oil is any better now than it was when you first went on the line, do you?—A. I couldn't say, I am sure.

Q. Then, by your own supervision you have reduced the number of pints about 3 cents per thousand miles' run?—A. Yes, sir.

Redirect examination by Mr. ROSENTHAL:

Q. What methods do you use there? The Galena methods that you have learned?—A. Yes, sir.

Q. The Galena method of packing?—A. Yes, sir.

Q. The Galena method of lubrication?—A. Yes, sir.

Q. All of which you theretofore had been in contact with and had learned from experience?—A. Yes, sir.

Q. And learned from Galena experts?—A. Yes, sir.

Q. On the Toledo, St. Louis & Kansas City Railroad, with respect to the changes that were made in those engines, those changes that you spoke of, that you made, by way of repairs, were

7023 changes that you found it necessary to make because of the theretofore improper lubrication, were they not?—A. The condition of the valve seats and cylinders were not satisfactory. They needed refacing, or resurfacing, as you might call it, to save the blow of the steam through the parts, which otherwise ought to have been tight.

Q. And what relation had those changes to lubrication?—A. Had you not introduced proper lubrication, you would have returned to the same condition again. It requires proper lubrication to maintain a proper surface under heavy pressure or hard work.

Q. So that the condition in which you found the cylinders and valves was due to the theretofore improper lubrication?—A. Yes, sir; it couldn't have been anything else. Lack of lubrication; I won't say it was improper, but I will say it was lack of lubrication.

Q. Well, that means the same thing. And you made those changes and introduced the Galena Signal oils and then you got the performance that you have told us of?—A. Yes, sir.

Q. Those were the only repairs of any consequence, as I understand it, that you made on the engines?—A. Except the routine repairs that are going on all the time.

Q. Except the ordinary day-by-day repairs that all engines are subjected to?—A. Yes.

Q. There wasn't any extensive overhauling of the locomotive rolling stock of the system, when you came there, with a view to
7024 putting it all in better condition throughout?—A. I can state, without fear of successful contradiction, that I reduced the payroll about $3,000 a month, and did the work at reduced cost.

Q. The improvements, then, that you made upon the engine, were lubrication improvements?—A. The condition of the engines which I referred to in my statement was brought about by the lack of lubrication. Whether it was improper oil or whether they didn't get the oil there, I am not prepared to state; but they were in that condition.

Q. Is the car oil that you use called Galena electric car oil?—A. No, sir.

Mr. KELLOGG. How many years was it that you were reducing this cost from 24 to 23 cents?

WITNESS. I would like to make my statement clear. Last year, figuring that the first of March was the end of our fiscal year, it averaged 24 cents and a fraction, and at present the monthly rate is running along about 21 cents. That is the meaning I tried to convey.

7025 ALEXANDER TURNER, being duly sworn as a witness on behalf of the defendants, testified as follows:

Direct examination by Mr. ROSENTHAL:

Q. What is your full name?—A. Alexander Turner.

Q. Where do you live?—A. Buffalo, New York.

Q. What is your business?—A. Mechanical superintendent for the Galena-Signal Oil Company.

Q. How old a man are you?—A. Forty-one.

Q. How long have you been connected with the Galena company?—A. Since February, 1899.

Q. On what roads have you been mechanical expert?—A. For the Galena-Signal Oil Company?

Q. Yes, sir.—A. I started with the Pennsylvania Company west of Pittsburg; later had the Grand Rapids & Indiana, then the Lake Shore & Michigan Southern, then the Chicago & Alton; later was relieved of the Pennsylvania lines west of Pittsburg, and assigned to the New York Central in place of the Pennsylvania lines west of Pittsburg.

Q. When were you with the Pennsylvania lines west of Pittsburg as a Galena expert?—A. From the time that I went with them, from 1899, until early in 1906.

Q. And why did you discontinue?—A. The Pennsylvania lines!

Q. Yes, sir.—A. I was assigned to other territory, the New York Central, instead.

Q. While you were acting as a Galena expert on the Penn-
7026 sylvania lines from 1900 to 1906, will you tell us what the situation was there, so far as their practices in regard to lubrication were concerned?—A. Their practices were extravagant.

Q. What did you find when you first went with that road, as to their general system of lubrication, in the year 1900?—A. I found their mechanical conditions were what I would call in fair condition.

Q. What do you mean by "their mechanical conditions?"—A. The conditions that pertain to the successful and economical lubrication. With the exception of the bearing metal, that ran at rather a high temperature and caused quite a little trouble from heating.

Q. What do you mean by their bearings running at a somewhat high temperature?—A. It has been my experience that a hard and brittle bearing metal will run at a higher temperature than a soft, tough metal.

Q. Will you tell us in detail just what you did or tried to do when you were with the Pennsylvania, when you went there?—A. When I went to the Pennsylvania I first visited the superintendent of motive power, who gave me a letter of introduction to his subordinates and representatives, with instructions not to advise any of his subordinate officers or make recommendations to them or their men concerning the use of the oils, but to investigate and determine what their practices were and report to him. I did not have the privilege of making recommendations to the men doing the work, or to his subordi-
7027 nates, as we ordinarily get on other railroads. Because of that I was not able to accomplish anything in the way of effecting any economy.

Q. I understand, as an expert, then, on the Pennsylvania, you had no authority to talk with the men that you came in contact with at all?—A. I didn't have the privilege of making recommendations or advising with them. I only had the privilege of conferring with them, ascertaining what their practices were, and reporting to the superintendent of motive power.

Q. The purpose of that being, that all instructions and directions have to emanate from the superintendent of motive power?—A. Yes, sir.

Q. How did that work out in practice?—A. The results will best speak for that.

Q. I mean, so far as your experience and observations went.—A. It did not work out very economically.

Q. Why not?—A. Because the superintendent of motive power did not give his subordinates to understand that he wanted economical performance with lubricating oils.

Q. Did you find, in your expert study of that line, conditions that you thought could be improved?—A. Yes, sir.

Q. Can you give us examples of that?—A. I found them using oils very extravagantly in the journal boxes of both locomotives and cars—cars in terminal yards and locomotives in the roundhouses.

Q. Now, let us stop right there. How extensively did you find that bad practice prevailing?—A. To the extent that the
7028 oil was running through the back of the journal boxes, dripping onto the ties, onto the floors of the roundhouses, passing onto the rim of the wheel, from there to the brake-shoes of both the car and

tender trucks, and from the brake-shoes and the brake-wheels thrown over the framework of the car and underneath.

Q. Was that general along the entire line?—A. Yes, sir.

Q. What did you do after that, if anything?—A. I reported the condition to the superintendent of motive power.

Q. What did he do?—A. Not much of anything.

Q. Did he take any steps at all, within your observation, to remedy that?—A. No.

Q. Was it remedied?—A. It was not.

Q. Could it have been?—A. Yes, sir.

Q. How?—A. By insisting upon the men doing the work as it should be done, or giving me the privilege of teaching the men how the work should be done. I might have been able to have taught them differently had I been allowed.

Q. Did that condition continue during the six years that you were there?—A. Yes, sir.

Q. And was the waste of oil in that regard as great in the end as it was in the beginning of your employment there?—A. Yes, sir.

Q. Can you give us any idea of the percentage of saving that could have been accomplished by permitting you to introduce your
7029 method, that you sought to introduce there in that regard? Would it have been a substantial saving, or otherwise?—A. It would have been a substantial saving.

Q. To what extent?—A. Perhaps 50 per cent.

Q. What do you mean by 50 per cent?—A. That you would have used one-half as much as you theretofore had used?—A. Yes, sir.

Q. In what other particulars, besides this one, did you find what you, as an expert, regard as improper methods in vogue there?—A. I don't understand just what you want, just what the question is.

Q. Don't you understand that?—A. No, I don't. I don't know whether you mean other particulars so far as lubrication is concerned, or some other.

Q. Both. So far as lubrication is concerned and so far as anything connected with it relating to lubrication is concerned.—A. There was no particular restriction on the amount of oil drawn by the enginemen.

Q. What do you mean by that?—A. I mean that they were allowed to draw about all the oil they wanted to draw and use it as they wanted to use it.

Q. Now, what about the use of coal and its relation to lubrication, that you found there?—A. I would say that they were rather extravagant in the use of coal.

Q. Who succeeded you as expert on the Pennsylvania? Anybody?—A. I don't know.

Q. Where did you then go?—A. To the New York Central.

Q. And Lake Shore?—A. I had the Lake Shore.

Q. What other roads besides the New York Central and the
7030 Lake Shore?—A. Chicago and Alton.

Q. When was it you went to the Chicago & Alton?—A. The fall of 1901.

Q. By whom was that line then being operated?—A. Operated?

Q. Yes.—A. The railroad company, do you mean?

Q. Yes.—A. The Chicago & Alton.

Q. What was the condition of things that you found there with respect to lubrication, when you first went there?—A. I found them very bad.

Q. Tell us about that.—A. The cost was very high on both locomotives and cars.

Q. Can you tell us how high?—A. Above $4.15 per thousand on locomotives; above 30 cents on passenger cars; above 9 cents on freight cars.

Q. What did you do?—A. I finally succeeded in having the mechanical conditions corrected.

Q. In 1901, what was the condition of the Alton with respect to the prevalence of hot boxes or hot bearings on locomotives?—A. There were a great many.

Q. Now, tell us just exactly what you did in the way of improving lubricating conditions and making suggestions, if any, that brought about the diminution of the hot bearings.—A. I found the mechanical conditions very bad, in that they were using a poor metal for the driving box crowns of locomotives. They were not finishing journals as carefully as it should have been done; driving box
7031 brasses were not properly fitted to the journals. The tops of the driving boxes had so many oil holes in them that the oil was drained away almost as rapidly as it was applied. I succeeded in having those——

Q. How did you come to observe those things?—A. I was sent there for that purpose.

Q. That had a direct relation to the subject of lubrication, had it?—A. Yes, sir.

Q. What general methods were they using before you came there?—A. The methods just described.

Q. Just what did you do to bring about a change?—A. I had those bad mechanical conditions corrected.

Q. How did you go about it to secure a correction of those conditions?—A. By calling the attention of the superintendent of motive power to the conditions; and, not being able to get his support in correcting them, then going to the general manager.

Q. What was the trouble with the superintendent of motive power?—A. He had previously been a Pennsylvania man; was familiar with their practices.

Q. You then went to the general manager?—A. Yes, sir.

Q. With what result?—A. With the result that he insisted upon having some of those mechanical conditions corrected, and about that time they changed the superintendent of motive power.

Q. Then what happened with the lubrication?—A. Then I had no difficulty at all in having the bad practices corrected.

7032 Q. In other words, you succeeded in getting the cooperation of the railroad officials?—A. Yes, sir; in charge of the mechanical department.

Q. And what was the result so far as the reduction in the cost of locomotive lubrication was concerned?—A. In the neighborhood of five months the cost was reduced to in the neighborhood of $2.70.

Q. From what?—A. Above $4.15.

Mr. KELLOGG. $4.15 for locomotives?

WITNESS. Yes, sir.

Q. And what was that due to?—A. Due to the improved mechanical conditions and cooperation on the part of the men that were handling the lubricants, by supervision over their use.

Q. And those improvements were suggested, as I understand, by you?—A. Yes, sir.

Q. And what was the result so far as hot bearings were concerned?—A. Practically eliminated in the passenger service.

Q. Do you know the difference in the record before you came there and after you introduced those methods and brought about those improvements, in the miles per pint of valve oil?—A. Yes. The miles per pint of valve oil were in the neighborhood of thirty-six miles per pint, average, when I went there.

Q. And what were you able to accomplish in that regard?—A. Increased the miles per pint to about 55—in that neighborhood.

7033 Q. And what did you find the miles per pint of engine oil when you came there?—A. About 12 or 13 miles per pint.

Q. And what were you able to accomplish by those improvements in changes of method in that regard?—A. Increased the miles per pint to between 18 and 20.

Q. Can you give us any specific instances that occurred to you on the Alton while you were introducing these improvements, showing just how you were able to bring about what conditions you found there?—A. Why, I have given the conditions as I found them. They were improved. The composition of their bearing metal was changed; changed their practice of fitting driving-box brasses.

Q. When you came to the Chicago & Alton as an expert in 1901, what was the general situation there with respect to permitting the men to use an unlimited quantity of oil for lubrication?—A. There was no restriction on the amount of oil they wanted to use.

Q. And what were you able to accomplish in that regard; what did you do?—A. I conferred with the road foreman of engines and master mechanic; got out the limit of the allowance for the various locomotives in the different services, which restricted the use.

Q. Just what is the difference between an unlimited amount of oil being used in that way and your restrictions in that regard? How do you restrict the use of the oil?—A. There is a schedule made out showing the amount of oils which should be delivered to the

7034 enginemen for the various types of locomotives and the various classes of service and where the oil should be drawn, showing how much per trip they should use or would be allowed to use. That

is with the view of merely assisting in educating the engineman to what he can lubricate with, and bringing the indifferent fellow up to the same standard of the fairly economical man.

Q. Is there any specific allowance of oil for a particular thing under the Galena methods?—A. I don't catch that.

Q. Don't you understand what I mean by that?—A. I don't know.

Q. Is there any regulation that has been introducted by the Galena with respect to the number of miles which should be made to the pint, and, therefore, that should be allotted to the engineer for different classes of service or different kinds of engines?—A. No, sir.

Q. What sort of restrictions do you seek to impose in educating an engineer to the more economical use of oil? Just explain that in detail.—A. That is governed entirely by the nature of the service and the type of the locomotive and my individual judgment as to what could be done.

Q. Can you illustrate that by some example?—A. No; I don't know that I can.

Q. How do you get at the quantity of oil that a given engineer should use on a given engine?—A. By investigating carefully the type of locomotive, the number of bearings, the weight of the locomotive, and the size of the cylinders and valves.

7035 Q. When did you go with the New York Central?—A. Early in 1906.

Q. And you are still there?—A. Yes, sir.

Q. What are you doing there? What have you been doing?—A. Looking after the interests of the Galena Signal Oil Company, assisting the New York Central to lubricate as economically as possible and get good service.

Q. What have you done in that regard?—A. There has been somewhat of a reduction made on the cost of lubricating passenger cars, and like reduction, perhaps, on the cost of lubricating freight cars. Locomotives have remained about the same, due to the introduction of new and heavy power. In the year 1906 they put in the service 194 locomotives.

Q. Of what type?—A. Large, heavy locomotives.

Q. And do you remember how many they put in in 1907?—A. One hundred and sixty-five.

Q. Do you remember how many they put in in 1908?—A. Sixty-five, so far delivered.

Q. How much do these new locomotives weigh, do you know?—A. Passenger locomotives weigh 246,000 pounds.

Q. Is that with the tender?—A. No.

Q. Without the tender?—A. Without the tender.

Q. How does that compare in weight with the older types of locomotive?—A. Of how long ago?

Q. Say 10 years ago.—A. It is about double the weight of the average passenger locomotive of ten years ago.

Q. Mr. Turner, what cooperation have you received from the
7036 New York Central officials along the lines of your work?—A. I have received what I would consider good cooperation.

Q. What do they do in the way of giving you good cooperation?—A. They permit me to confer with and advise their subordinates and the men doing the work, enginemen, trainmen, roundhouse employees, shop employees; in fact, everybody that has anything to do with the subject of lubrication they permit me to advise with and make recommendations to them.

Q. So on that system you are in direct contact with the men who actually do the lubricating?—A. Yes, sir.

Q. And are authorized to advise with them closely?—A. Yes, sir.

Q. Personally?—A. Yes, sir.

Q. And with what result, in your observation?—A. I would consider good results.

Q. During the years that you have been in the service have you formed any opinion, based upon your observation, as to whether economy in the use of oils has caused economy in other directions?—A. Yes, sir.

Q. Please tell us about that.—A. Economy in the use of oils affects economy in the use of waste, especially of the waste used for packing purposes, also the waste that is used for cleaning purposes. Where oils are used extravagantly there is more or less dirt accumulates on the surplus oil that has to be wiped off, all of which takes labor and material.

Q. And does that disappear with the more economical use of
7037 the oil?—A. It is reduced very materially.

Q. What other road besides the New York Central are you now supervising?—A. The Lake Shore & Michigan Southern.

Q. And what cooperation have you received there?—A. First-class cooperation.

Q. Substantially the same as on the New York Central?—A. Yes, sir.

Q. And with equally as good results?—A. Yes, sir.

Q. What do you say as to the reduction in the number of hot bearings during the years that you have been in the service and what that reduction is due to?—A. There has been a material reduction, in the nine years I have been with the Galena-Signal Oil Company, due, I believe, to their constantly improving practices. I haven't any records. The Lake Shore & Michigan Southern keep a record of the number of hot boxes per thousand mile run on all classes of service.

Q. I think we have that from the railroad itself, so I won't go into it, but, generally speaking, you are prepared to say there has been a marked improvement?—A. Yes, sir.

Q. Has there been during the nine years you have been connected with the Galena as an expert any improvement in their own methods of doing what they do?—A. Yes, sir.

Q. In what regard, for example; in what particular?—A. They have recommended reducing the quantity of waste put into a journal

box for the initial lubrication. They have recommended the proper lubrication of oil pipes on steam chests, to insure good distribu-
7038 tion of the oil delivered to the steam chest and cylinder. They have assisted somewhat in helping the traveling engineers to teach the enginemen that are coming up on the subject of lubrication.

Q. Have they brought about more economical use of waste?—A. Yes, sir.

Q. I show you defendant's Exhibit 31. Have you ever seen that before, or a copy of it?—A. Yes, sir.

Q. Where?—A. First at our annual meeting in Franklin.

Q. Do you know what use has been made of it by the Galena Company?—A. Yes.

Q. What?—A. To assist their men and the representatives that they come in contact with in calculating the rate per square inch of journal bearing.

Q. Has it been generally distributed?—A. Quite generally.

Q. Where?—A. On the various railroads.

Q. Among railroad employees?—A. Among railroad employees that have to do with this particular subject, such as mechanical engineers.

Cross-examination by Mr. KELLOGG:

Q. When did you say you went to the Chicago & Alton Railroad?—A. The fall of 1901.

Q. You are sure about that, are you?—A. Well, quite.

Q. What do you say the cost was per 1,000-mile run for locomotives for lubrication that year?—A. Above $4.15.

7039 Q. For the year ending what time?—A. I didn't say "year."

Q. What?—A. I didn't say "year." The month I had the record of previous to my going there.

Q. The month you had the record of previous to your going there?—A. Yes.

Q. It was $4.15?—A. Above that; I don't remember exactly what.

Q. Now, where did you get your figures from?—A. The report on the railroad; the report that I found on the railroad.

Q. The Galena-Signal Oil Company keeps records of all those things?—A. Yes, sir.

Q. There is no doubt their records are accurate?—A. Yes, sir.

Q. As a matter of fact, doesn't the record show that for the entire year previous to your going there the cost was only $2.15—the lowest cost they ever made during any of the years?—A. I don't know anything about that.

Q. If the Galena-Signal records show that you would think that would be correct, wouldn't you?—A. They should be.

Q. Now let me show you the record. You are mistaken about two dollars, aren't you?—A. No.

Q. You are not?—A. No, sir.

Q. Have you got those records with you?—A. No, sir, I have not.

Q. They make a record, don't they?—A. Yes, sir, they make a record.

7040 Q. Of what they settle at for all their oils with the Galena-Signal Oil Company?—A. Yes, sir.

Q. The cost for the year?—A. They make a report monthly, showing the oils consumed each month and the——

Q. Now, for the year ending March 31, '01, it appears, according to their statement, that they got a refund from the invoice price of 9 per cent; or, in other words, that they operated for about 91 per cent of the invoice price. Are you familiar with that?—A. No; I am not.

Q. On what basis was that $4.15 made; upon the invoice price of the oil, or the guaranty?—A. The invoice price of the oils.

Q. What was the invoice price for that year?—A. What do you mean?

Q. To the Chicago & Alton Railroad.—A. Per gallon?

Q. Yes.—A. 48 for valve oil, 28 for engine, 18 for car.

Q. How would you arrive at the cost for lubricating their locomotives?—A. How would I arrive at it?

Q. Yes; for the whole year preceding the year you went there.—A. For the year?

Q. Yes.—A. The total amount of oils used, the value of the oil, and mileage of locomotives.

Q. Assume that they paid the full invoice price, will you take petitioner's Exhibit 418 (page 211), furnished by the Galena-Signal Oil Company, and show me what it cost the Chicago & Alton Railroad to lubricate its engines, and if it was not $2.15 instead of $4, what you said?

7041 Mr. ROSENTHAL. He didn't say it was $4.15 for the year.

Mr. KELLOGG. It wasn't for any year, and never has been.

Mr. ROSENTHAL. He said it was $4.15 for the one month that he examined, which he instituted a comparison with, as to the performance he had.

Q. You figure it out for the entire year, will you?—A. No; I am not a mathematician.

Q. Can't you figure it?—A. I haven't got the time.

Q. You haven't got the time? Well, you just take the time right now and do it.

The EXAMINER. We will adjourn until 2 o'clock.

Q. Will you do it, or do you decline to do it?—A. I will do it; yes. You had better have somebody else do it that is more familiar with that kind of work than I am and I will prove it.

Q. You are swearing it is $4, and I will show you you are mistaken by $2 exactly.

(A recess was here taken until 2 o'clock p. m., at which time Mr. Kellogg resumed the cross-examination.)

Q. Now, Mr. Turner, you said it was $4.15.—A. I said that the monthly report that I saw shortly before the time that I went to the railroad was $4.15, or maybe above.

Q. How are your monthly reports made out?—A. Monthly, but always perhaps 40 or 45 days late.

Q. As a matter of fact, those monthly reports are made out by taking the oil that is charged out of the general storehouse,
7042 aren't they?—A. Yes, sir.

Q. In other words, if there is taken from the general storehouse and distributed on the line a certain amount of oil in a month, that is charged to the expenses of that month, isn't it?—A. No.

Q. And it is revised at the end of the six months or the year, isn't it?—A. No.

Q. Doesn't every railroad, in making up its statements, charge to the cost for the month the amount charged out of the general storehouse?—A. No, sir; the amount actually used.

Q. They don't know the amount actually used, do they?—A. Yes; they do. They take the amount actually used.

Q. What was the amount for the year ending March 31, 1901?—A. Oh, I don't know anything about that. I wasn't there, Mr. Kellogg.

Q. Can't you figure it out?—A. Yes.

Q. Didn't you figure it out to-day noon?—A. I went over it; yes.

Q. How much was it?—A. $2.73.

Q. And that is the lowest cost they ever made, isn't it, since you have been there?—A. I think so.

Q. So that instead of your reducing the cost per 1,000 miles, you increased it every year, didn't you?—A. No; the equipment increased very materially in that period.

Q. But when you were talking this morning you said you had reduced it from $4.15 to $2.15.—A. No, sir, I beg your pardon; $2.70.

7043 Q. $2.70?—A. About.

Q. When was it $2.70?—A. January or February of 1902.

Q. You took a whole year, did you?—A. Oh, no; monthly report.

Q. You picked out some month, did you?—A. Mr. Kellogg——

Q. You picked out some month, didn't you?

Mr. ROSENTHAL. You wait a minute. Let him answer the question. Go ahead and answer it.

WITNESS. The experts, in looking after the cost of lubrication on a road, are governed by the monthly reports, not the year's reports. We are governed by the monthly reports, and I am testifying to the monthly reports.

Q. You picked out a month, didn't you?—A. No.

Q. How did you happen to get that by a month?—A. Because I remembered the cost was brought down. The first time we got our system in effect and in good shape and the schedule working, that month showed, if I remember correctly, $2.68.

Q. Now, there is a difference in the months in the year, isn't there?—A. Not a great difference.

Q. If you showed a cost of $4.15 in one month and it was only $2.72 in the whole year?—A. There was on that railroad.

Q. Very great difference in the months, then, wasn't there?—A. I presume there was.

Q. Then, it is a fair test to take the whole year, isn't it?—A. I presume so.

Q. And taking the whole year, the year before you went
7044 there was the cheapest year they have ever had from that day to this, wasn't it?—A. I don't know anything about it. Only this I know.

Q. Well, the reports show it, don't they?—A. I don't know but we have had——

Q. Do the reports show it?—A. Yes, sir.

Q. And the reports made by the Galena-Signal Oil Company show it, don't they?—A. Yes, sir.

Q. Yes, sir, that is what I thought. Now, what year was that $2.70 cost for the year?—A. This record shows the fiscal year ending March 31, 1901.

Q. That is what I thought. That was before you went there?—A. Yes, sir.

Q. What was the month that the low cost you mentioned was made in?—A. I think the following January or February, 1902.

Q. Just one month?—A. Two months, close together, and remained about at that for a considerable time until they got a few more engines, and it ran up a little bit more.

Q. But the year's report shows that there was an increase in cost, the whole year's report?—A. I couldn't swear to that.

Mr. ROSENTHAL. We will put it in month by month. We will put it in now if you want it, or on redirect, just as you want it.

Q. You stated that when you went to the Alton road the engines were making about 36 miles per pint of oil, and you increased them to 55 miles per pint of oil.—A. In that neighborhood.

7045 Q. No, I mean engine and valve oil were making about 36 miles and you increased it to 55; and engine oil 12 or 13, and you increased it to 18 or 20.—A. I believe between 18 and 20.

Q. Now, isn't it true that during the entire year ending March 31, 1901, the engines of the Alton road made 60.66 miles per pint of valve oil and 22.1 miles for engine oil?—A. I don't know.

Q. 22.01?—A. I don't know.

Q. It is an easy matter to figure it from that report, isn't it?—A. I presume so.

Q. There is some difference between 36 miles and 60 miles, isn't there?—A. I am talking about the month that I referred to in my statement.

Q. You picked out one month?—A. No, sir, I picked out the last month of which I saw any report previous to my going with the Alton, which my statement will there verify.

Q. Will you look and see how many miles the Alton engines made per pint of valve oil and engine oil in the year ending March 31, 1901? There are the figures. Verify them and see if they are correct.

(The witness was shown a calculation, which was explained to him by Mr. Chase.)

A. They are correct.

Q. Then, for the year ending March 31, '01, before you went on the Alton road, the engines made an average of 60.66 miles per
7046 pint of valve oil and 22.01 miles per pint of engine oil; that is correct, is it?—A. Yes, sir.

Q. Then, your statement that they made only 36 miles per pint of valve oil and 12 or 13 miles per pint of engine oil must have been for one extraordinary month?—A. It was for the month, I told you, previous to my going there.

Q. And it wasn't a fair average for the year?—A. It wasn't a fair average for the year.

Q. Then, the year's average is the best estimate of what the continuous good service is, isn't it?—A. If it hadn't been for the work done immediately after that, the average for that year would have been much higher than it was.

Q. But the average for that year you had nothing to do with, had you?—A. Not the previous year.

Q. Not the year you are speaking about here?—A. Not 1901, no.

Q. The fact remains, then, that you picked out a very low month?—A. No, sir; not intentionally.

Q. Not intentionally, but you did, didn't you?—A. I simply gave you the month that I saw the last report of previous to my going there.

Q. How does it happen in every one of the instances you give us here you picked out a very low month, and the average for the year was very much higher?—A. When I was instructed to go there by our company, they sent me the last report as the cost of which they had a record, and assigned me to that road and asked me to see if I couldn't make an improvement.

7047 Q. Yes, but how did you happen to pick out the high months in the year you were there?—A. They didn't give me the year's record; they gave me the month record.

Q. After you went there you picked out January and February, you said?—A. Because, I told you, within five or six months the cost was brought down to the neighborhood of $2.76.

Q. How did you happen to pick out the two particular high months?—A. I remembered distinctly the effect of the cooperation that I got for that month.

Q. Of course, you didn't pick them out in order to make a good showing here?—A. No, sir.

Q. You did not?—A. No, sir; I did not.

Q. Well, they evidently do not represent a fair average for the year, do they?—A. I didn't give you an average for the year.

Q. When did the Alton make the change in its superintendent of motive power?—A. In the latter part of 1899, the very latter part.

Q. That was before you went there?—A. Yes, sir.

Q. I thought you said they changed the superintendent of motive power——A. Again.

Q. Again?—A. Yes, sir.

Q. Well, that is the change I am trying to get at.

Mr. ROSENTHAL. Let us have both changes.

Q. When was the next change?—A. Some time early in the year 1902, January or February; I wouldn't say.

7048 Q. Now, as a matter of fact, the Alton has always used Galena oil, hasn't it, ever since you saw the records?—A. Yes.

Q. Long before you went there?—A. Yes; I presume so.

Q. Who was the Galena expert that preceded you?—A. I am not just sure. I know there were two or three men there for a very short time.

Q. They had Galena experts on the road before you went there?—A. Yes.

Q. They couldn't have attended to their business very well; did they?—A. Yes, sir; I believe they did.

Q. Now, take the Pennsylvania Company. You say you were the Galena expert on the Pennsylvania Company west of Pittsburg?—A. I said when I first went to work for the Galena Oil Company I looked after the Pennsylvania Company lines—the Pennsylvania Company west of Pittsburg.

Q. That is what is known as the Pittsburg, Fort Wayne & Chicago line?—A. Yes, sir.

Q. That is from Pittsburg to Chicago?—A. Yes, sir.

Q. That doesn't include the Pan Handle?—A. No.

Q. The Pittsburg, Cincinnati, Chicago & St. Louis?—A. No, sir.

Q. Commonly known as the Pan Handle?—A. I don't know that it wouldn't, as I understand it.

Q. And the reports were made separately for those two companies?—A. Yes, sir.

Q. When did you say you went to the Pennsylvania Company, which we now will call the Pittsburg, Fort Wayne & Chi-

7049 cago?—A. The latter part of February, or the early part of March, 1899.

Q. And you left that company at what time?—A. You mean the Pennsylvania Company now?

Q. Yes, the Pennsylvania Company.—A. I am not just sure, but shortly after I was assigned to the Chicago & Alton; in the fall of 1901 or the early part of 1902.

Q. Then, you were with the Pennsylvania Company from 1899 to the fall of 1902?—A. That is, the Pittsburg, Fort Wayne & Chicago; yes, sir.

Q. Did you ever have the Pan Handle line?—A. Yes; that is where I got confused, perhaps, in my statement this morning, where I said I continued to look after them until 1906.

Q. You went with the Pan Handle at the same time you did the Pennsylvania Company?—A. About three months later.

Q. And you continued to look after that until 1906?—A. Yes, sir.
Q. During the years you were there you think the Pennsylvania Company wasted oil?—A. Yes, sir.
Mr. ROSENTHAL. Well, he says he knows they did.
Q. On its locomotives?—A. Yes, sir.
Q. And cars also?—A. I did get a little assistance on the Pan Handle on cars.
Q. I am speaking of the Pennsylvania Company now, Mr. Turner.—A. Yes.
Q. Separate from the Pan Handle.—A. Yes.
7050 Q. And their reports are made separately?—A. Yes, sir.
Q. Now, did it waste oil on its engines or——A. Both.
Q. Both engines and cars?—A. Yes. The increase was not so marked on the cars as on the locomotives.
Q. Then it wasted, you think, more oil on locomotives than it did on cars?—A. Yes, sir.
Q. The invoice price to both companies, both the New York Central and the Pennsylvania, is the same, isn't it?—A. Yes, sir.
Q. Always has been?—A. Yes, sir.
Q. Now, taking the amount of oil at invoice price and charging it to the locomotives would show which company used the most oil, wouldn't it?—A. Yes, sir. Just a minute. That statement again please.
Q. Taking the oil at invoice price, the invoice price being the same, and charging it to the locomotives, would show which company used the most oil, wouldn't it?—A. Per 1,000 miles?
Q. Yes; per 1,000 miles run.—A. Yes, sir.
Q. That is correct, isn't it?—A. Yes.
Q. Now, I ask you if it is not a fact that the New York Central used more oil during those same years than the Pennsylvania Company?—A. I don't know.
Q. Can you tell by looking at the reports?—A. I presume I can.
Mr. CRAWFORD. What year is this, Mr. Kellogg?
Mr. KELLOGG. 1899, 1900, 1901, and 1902.
7051 Mr. ROSENTHAL. When did you go with the New York Central?
WITNESS. 1906.
Mr. ROSENTHAL. Do you know anything about the New York Central before that?
WITNESS. No, sir.
Mr. ROSENTHAL. Did you know anything about the system of accounting or anything connected with it?
WITNESS. No.
Mr. ROSENTHAL. I submit that the witness ought not to be compelled to become an accountant in connection with exhibits that he has had nothing to do with.
Mr. KELLOGG. He has been testifying to figures which appear to be wrong.

Mr. ROSENTHAL. He hasn't testified to or instituted, or attempted to institute, any comparison between the Pennsylvania at that time and the New York Central at that time.

Q. If it appears by the exhibits in evidence that at the invoice price, in 1899, it cost the New York Central $2.54 per 1,000 mile run of locomotives and the Pennsylvania Company $2.26, then the New York Central used more oil, didn't it?

Mr. STEINBRENNER. Not necessarily.

Q. At the same invoice price?—A. I don't know.

Q. You said a few moments ago that if you take the amount of oil used by the engine and charge it at full invoice price, it will show which company used the most, didn't you?—A. Show which company cost the most per 1,000 mile run.

Q. And if the price was the same, then, it would show which
7052 used the most, wouldn't it?—A. I think it would.

Mr. ROSENTHAL. If the equipment were the same.

Q. Then, I say, if the Pennsylvania Company actually, at invoice prices, used $2.26 worth of oil per 1,000 mile run and the New York $2.54, the New York used more oil, didn't it?

Mr. ROSENTHAL. I object to that because it fails to take into account the character of the equipment and character of the oil, and it is a misleading question which can not be answered. The character of the oil used by the New York Central, the different quantities of the different kinds, may have been entirely different on the Pennsylvania, and the witness ought not to be forced to make any such comparison.

Q. The New York Central used Galena oil, didn't it?—A. I don't know. I wasn't there.

Q. Never looked into it to find out whether they were using Galena before you went there or not?—A. Oh, yes; before I went there they were using it, but I don't know before 1889.

Q. It appears by the record here they did use Galena oil before 1889.

Mr. ROSENTHAL. On the record here the Pennsylvania used 18-cent oil and the New York Central nothing less than 27, which at once stamps the comparison as unfair.

Q. This was the oil furnished by the Galena company, wasn't it?—A. Why, I presume so.

Q. The equipment of the New York Central road and of the Pittsburg, Fort Wayne & Chicago (the Pennsylvania company) is substantially the same kind of equipment; wasn't it?

7053 Mr. ROSENTHAL. Is, or was during those years?

Mr. KELLOGG. Is, and was during those years.

A. I don't know.

Q. Are thy now?—A. I don't know.

Q. You have been on both roads, haven't you?—A. Yes, sir.

Q. Traveled over both roads, haven't you?—A. I haven't traveled over the Pennsylvania company since 1903, I believe.

Q. When you left the Pennsylvania company you went direct to the New York Central, did you?—A. Now, what are you talking about—the Pennsylvania lines or the Pennsylvania company?

Q. The Pennsylvania lines?—A. When I left the Pan Handle?

Q. You went direct to the New York Central?—A. Yes, sir; 1906, the first of the year. My last trip over the Pan Handle was sometime during the summer of 1905.

Q. Then, you don't know the general nature of the equipment on the Pennsylvania lines since 1902?—A. No.

Q. You wouldn't have any opinion about it whatever?—A. I wouldn't want to express an opinion under oath that I wasn't sure of.

Q. Do you go around and measure up the cars in order to determine the size of them on the road?—A. I know one when I see it.

Q. And you know, as a general thing, that on the Pennsylvania lines and the New York lines during all these years the equipments have been substantially the same kind, don't you?—A. Not the same kind.

Q. Well, average about the same?—A. Pretty close to it.

7054 Q. So that there isn't any great difference between the equipment on the Pennsylvania lines and the New York Central, is there?—A. Now, I wouldn't want to say, because occasionally a railroad will put on an awful lot of cars in one year; the Pennsylvania might have done that about the time I left, and I don't know anything about it, and the New York Central may have put in their heavy power before I came there.

Q. But you take it for a term of years, the Pennsylvania lines and the New York Central lines have had the same kind of equipment?

Mr. ROSENTHAL. But your question is limited to one year.

Mr. KELLOGG. No; it isn't.

Mr. ROSENTHAL. Your question of comparison is.

Q. Will you answer that?—A. Well, for a term of years——

Q. Yes.—A. Or one year? Very close to the same, perhaps.

Q. So that during all those years, four or five all together, you haven't any doubt that the Pennsylvania equipment and the New York Central equipment were substantially the same kind of equipment?—A. Yes; I have some doubt.

Q. How much of a doubt?—A. Because I have just told you about them occasionally putting in a lot of locomotives in one year.

Q. Which company put in the lot in one year?—A. I don't know which might have done it.

Q. You don't know whether they did or not?—A. I know that they have both got some new locomotives; how many, I don't know.

7055 Q. You do know, don't you, that all of these eastern roads have, every year, bought considerable equipment?—A. Do you consider the Pennsylvania Company an eastern road?

Q. Well, it is east of Chicago.—A. Yes.

Q. So is the Lake Shore.—A. The Pennsylvania Company east of Chicago have a raft of branches—that is, a lot of branches on which they use light service.

Q. So have the New York Central and Lake Shore, haven't they?—A. Not as much.

Q. Now, it appears by the exhibit in evidence that, from 1897 to 1903, the Pennsylvania Company had a guaranteed engine cost of 74.6 per 1,000 mile run for its locomotives. Did you know about that?—A. That was the guarantee when I went there.

Q. Yes, sir. It appears by the same evidence that the New York Central, during the same period, had a guaranteed cost of $2.35, except three years when it was $2.50 per 1,000 mile run. Did you know that?—A. Not during that period I didn't.

Q. You didn't know that? You know the New York Central now has a $2.50 guaranty, don't you?—A. Yes, sir.

Q. And when you went there it had a $2.35 guaranty? Don't you?—A. Yes, sir.

Q. Now, then, do you know of any reason why the Pennsylvania should have a guaranty of less than one-third of the New York Central?—A. No, sir; I don't.

Q. You consider it a reasonable difference between the two?—A. Reasonable difference?

Q. Yes.—A. I don't know anything about that.

7056 Q. You have no opinion on that subject?—A. I don't know what the motives were for making the difference.

Q. I am laying aside all motives.

Mr. ROSENTHAL. Did you have anything to do with making the contracts?

WITNESS. Nothing.

Q. You are an oil expert, aren't you?—A. I am not making contracts in regard to the use of oil.

Q. No, certainly not, but you are an oil expert. I want to know if you know any reason in the physical condition of the roads why the New York Central should have a guaranty more than three times as great as the Pennsylvania company?—A. No, sir.

Q. Is there any reason?—A. Not that I know of.

Q. You would know it if there was, wouldn't you?—A. Maybe.

Q. Well, you think you would, don't you?—A. Yes, sir.

Q. Do you think the Pan Handle road also wasted oil?—A. Yes, sir.

Q. During the period you were there?—A. Yes, sir.

Q. From 1900, was it?—A. 1899.

Q. Well, from 1899 down to 1906?—A. Yes, sir.

Q. You were with the Pan Handle company?—A. Yes, sir.

Q. Now, during that period, or a good part of that period, you also had charge of the Alton road?—A. Yes, sir, commencing 1901.

Q. Commencing 1901 and running down to what time?—A. The present.

Q. Did the Alton waste oil, too?—A. When I went there.

Q. Did they after you went there?—A. They are wasting
7057 a little yet. There is room for improvement.

Q. They didn't waste as much as the Pan Handle did during the same years?—A. No, sir.

Q. How does the size of the equipment of the Alton and the Pan Handle correspond?—A. The Alton is much larger.

Q. The Alton is much larger equipment than the Pan Handle?—A. Yes, sir.

Q. On an average?—A. Yes, sir.

Q. Then, it ought to use more oil. And it did use more oil, didn't it, per 1,000 miles than the Pan Handle?—A. I think it did.

Q. And the Alton used more than the Pennsylvania, didn't it?—A. While I was there, yes. sir.

Q. You don't think the Alton equipment is any heavier than the Pittsburg, Fort Wayne & Chicago, do you?—A. During that time, yes, sir.

Q. During all those years it was heavier?—A. During my time, yes, sir.

Q. Than the Pittsburg, Fort Wayne & Chicago?—A. Averaged heavier.

Q. Did you ever solicit any business?—A. No, sir.

Q. Never solicited any whatever? Did you ever get any?—A. No, sir.

Q. The Standard Oil companies are large shippers over the Pennsylvania lines and these other lines, aren't they?—A. I don't know.

7058 Q. You don't know anything about it?—A. No, sir.

Q. You have no knowledge on that subject whatsoever?—A. I occasionally see a Tank Line car.

Q. You see a good many of them, don't you, on the Alton road?—A. I never noticed any——

Q. Never noticed any on the Alton road?—A. Oh, no; I never noticed any unusual number on the Alton as compared with other roads.

Q. You see a good many of them on all roads, don't you?—A. Yes, sir.

Q. The Union Tank Line Company is a Standard Oil concern, isn't it.—A. I don't know.

Q. Did you ever hear it was?—A. Yes, sir.

Q. You have every reason to believe it is, haven't you?—A. Yes, sir.

Q. Do you travel on passes?—A. Yes, sir.

Q. On all these lines that you have named?—A. Well, that I am looking after now.

Q. What lines are you looking after now?—A. The New York Central——

Q. Lake Shore?—A. Lake Shore & Michigan Southern, Chicago & Alton.

Q. Michigan Central?—A. No, sir.

Q. Chicago & Alton?—A. Yes, sir.

Q. Then, the New York Central lines, the Lake Shore & Michigan Southern lines, and the Chicago & Alton?—A. Yes, sir.

7059 Q. You have passes on those lines?—A. Yes, sir.

Q. On any other?—A. No, sir.

Q. No other?—A. You said the Lake Shore lines, did you not?

Q. Yes.—A. No other.

Q. No other than the Lake Shore lines?—A. Well, there is a line out there, I don't know what it is considered; it is Chicago, Indiana & Southern, I believe; it is part of the Lake Shore.

Q. You have charge of it?—A. Yes, sir.

Q. That is, you have passes on those lines that you have charge of?—A. Yes, sir.

Q. And no others?—A. And no others.

Q. And you are paid by the Galena-Signal Oil Company?—A. Yes, sir.

Q. You are not an employee of the New York Central road?—A. No, sir.

Q. Or of the Lake Shore road?—A. No, sir.

Q. Nor subject to their orders?—A. No, sir.

Q. You are entirely subject to the orders of the Galena-Signal Oil Company?—A. Yes, sir.

Q. Your superior officers?—A. Yes, sir.

Redirect examination by Mr. ROSENTHAL:

Q. I show you defendants' Exhibit 33, which purports to be a record of locomotive performance on the Chicago & Alton from 1893 down to 1907, inclusive. Have you ever seen that before?—A. I have.

7060 Q. That shows, does it not, the variation in the actual cost of locomotive lubrication on the Chicago & Alton, month by month, through those respective years?—A. It does.

Q. And this variable line, the black line running across that exhibit, indicates change in price from month to month, does it not?—A. It does.

Q. Now, can you tell from an examination of defendants' Exhibit 33 what it was actually costing the Chicago & Alton Railroad Company for lubrication of its locomotives in the month of July, 1901?—A. I can.

Q. What month was it that you started your expert service on that road, do you remember?—A. Why, some month early in the fall; I wouldn't say positively which.

Q. Will you look on defendants' Exhibit 33 and tell us what it cost for locomotive lubrication per 1,000 miles in the month of July, 1901?

Mr. KELLOGG. Now, wait a moment. Let me ask him about this exhibit before he answers that question. Who made up this Exhibit 33?

WITNESS. I don't know.

Mr. KELLOGG. You don't know whether it is accurate or not?

Mr. ROSENTHAL. No; we will make specific proof of that hereafter.

Mr. KELLOGG. No; I will ask him.

Mr. ROSENTHAL. I don't pretend to prove the exhibit by him.

Mr. KELLOGG. I propose to prove he doesn't know anything about it.

7061 Mr. ROSENTHAL. If you want to make that point, I will only mark it defendants' Exhibit 33 for identification.

Mr. KELLOGG. No; I want to ask him about it.

Mr. ROSENTHAL. Let me have it if there is any question about it at all. I will mark it for identification because I know this witness doesn't know anything about the verity of it.

Mr. KELLOGG. I will find out what he knows about it.

Mr. ROSENTHAL. All right; I can afford to waste as much time as you can on that.

Mr. KELLOGG. Where was this made up?

WITNESS. I don't know.

Mr. KELLOGG. Where did you see it?

WITNESS. This noon for the first time.

Mr. KELLOGG. It purports to show the variations in cost of locomotive lubrication over a period of years, doesn't it?

WITNESS. Yes.

Mr. KELLOGG. Eack horizontal space is a month?

WITNESS. Yes.

Mr. KELLOGG. Did you ever see any of these before?

WITNESS. Never.

Mr. KELLOGG. According to this there is a great variation between the months, isn't there?

Mr. ROSENTHAL. Now, just a minute. That I object to. I have no objection to your taking this witness away from me for the purpose of examining him concerning his knowledge of this exhibit, but I don't want you to steal him away from me on cross-examination altogether.

7062 Mr. KELLOGG. All right, sir; go ahead. I will accommodate you.

Mr. ROSENTHAL. I would just as soon mark this defendants' exhibit for identification.

Mr. KELLOGG. No, go ahead.

Mr. ROSENTHAL. Because I will prove it hereafter. It is only to save a double marking, that is all.

Q. You don't know anything about the correctness of defendants' Exhibit 33 yourself?—A. I do not.

Q. Assuming these figures to be correct, and assuming that the exhibit is correct, what does it show with respect to the cost of locomotive lubrication in the month of July, 1901, on the Chicago & Alton?—A. I would take that to represent $4.15.

Q. That is, that the average cost of locomotive lubrication for 1,000 miles on the C. & A. for the month of July, 1901, was $4.15?—A. Yes, sir.

Q. And that was shortly before you came there?—A. Yes, sir.

Q. Now, that was the highest point reached in locomotive lubrication cost on that road, as shown by this diagram, wasn't it?—A. Yes, sir.

Q. That was in July, 1901?—A. 1901.

Q. And you came there early in the fall of 1901?—A. Yes, sir.

Q. Now, when was it that the superintendent of motive power that you spoke of had come from the Pennsylvania and who used Pennsylvania methods of lubrication—when was it that he began with the Chicago & Alton?—A. I think late in the year 1899.

7063 Q. And how long did he remain in that position with the Chicago & Alton?—A. Until the first of the year 1902.

Q. You told us this morning that it was in part by reason of your complaint, I think, that you had made?—A. No.

Q. At all events, you made certain complaints, and thereafter there was a change?—A. I said that in order to get assistance I had to go to the general manager, who compelled him to give me assistance. Shortly after that the superintendent of motive power was changed.

Q. Now, this chart, marked "Defendants' Exhibit 33," shows a gradual, steady reduction, beginning in the late summer of 1901, in the cost of locomotive lubrication from $4.15 down to $2.70 in February or March, 1902, does it not?—A. Yes, sir.

Q. So that within seven or eight months after you became the expert upon the Alton and introduced to the extent of your ability the Galena methods of expert supervision there was a drop in the cost of lubrication from $4.15 a thousand to $2.70 a thousand?—A. Yes, sir.

Q. These red figures on here between the two blue lines indicate the average cost of locomotive lubrication for the year, do they not?—A. I believe they do.

Q. For the preceding year. Was there also about that time an increase in the weight of the locomotive equipment on the C. & A.?—A. Yes, sir.

Q. To what extent?—A. I was told by the mechanical engineer that the number of square inches of lubricating surface per locomotive increased 104 per cent between the years 1898 and 1903—five years.

7064 Mr. KELLOGG. I move to strike that out as hearsay.

Q. While you are acting as an expert on the Chicago & Alton, for example, the New York Central, and any of the other systems that you are the expert of, you have railroad passes?—A. Yes, sir.

Q. That enables you to travel without cost on those particular lines on which you are an expert. How much of your travel is at the instance of the railroad officials?—A. A very large percentage.

Q. I wish you would explain just how that comes about.—A. By getting letters or telegrams from them from time to time concerning a little trouble that might appear in the nature of hot bearings, and asking me to investigate.

Q. That is, anything in connection with the matter of lubrication that arises anywhere along the road may be by letter or telegram called to your attention?—A. Yes, sir.

Q. And you are requested to go from where you are to that particular point for the purpose of investigating?—A. Yes, sir.

Q. That constitutes a large percentage of your travel, doesn't it?—A. Very large.

Q. And it is in going from point to point in that way that you use these railroad passes?—A. Yes, sir.

By Mr. KELLOGG:

Q. Now, according to this Exhibit 33, about which you have been testifying, it seems that there is a very great variation of the cost between the various months.—A. In what period?

Q. All periods, practically. Each year there is a very great
7065 variation between the months.—A. I don't remember any place where it is so great as for that period in 1901.

Q. Is that what I asked you?—A. I don't know of any place where it is very great, then.

Q. You don't know of any very great variation except in that one month?—A. That one period.

Q. In 1901. Now, I will ask you if there was not a very great variation between the months in the year 1900, as appears by the same statement.—A. Not as great as 1901.

Q. Did I ask you that? I asked you if there was not a very great variation.—A. I wouldn't consider it so very great.

Q. You wouldn't consider that great?—A. Not as great as 1901.

Q. Did I ask you if it was as great as 1901?—A. No.

Q. Well, will you please answer my questions?—A. I am trying to.

Q. Now, was there a great variation in the year 1900?—A. That depends upon what you or I would consider great.

Q. As a matter of fact, wasn't the variation in the year 1900 greater than it was in 1901?—A. I couldn't swear to that.

Q. Well, you said it wasn't. Will you look at that statement and see if it was not greater?—A. I was taking the extreme, here to here [pointing on the exhibit].

Q. You were mistaken, weren't you?—A. Between 1900 and 1901.

Q. You were mistaken as to the year, weren't you?—A. As to the great variation, yes.

Q. There was a greater variation in 1900 than there was in
7066 1901?—A. I was taking from the low point of 1900 to the high point of 1901.

Q. As a matter of fact, during the year 1900 the variation was greater than it was in 1901, wasn't it?—A. Let me see. [After looking at the exhibit.] 5 cents greater in cost per 1,000 miles.

Q. Now, the lowest years of cost per 1,000 miles that the Alton Company had were during the years of 1895 to 1899, weren't they?—A. I don't know.

Q. Well you have been testifying——A. Oh, yes, according to that statement; yes, sir.

Q. And the average for the year ending December, 1901, was less than it was for any year thereafter?—A. I am not sure.

Q. You are not sure about that?—A. No, sir. I could be by looking at the diagram there. I think that is correct.

Q. That is your best recollection, isn't it?—A. Yes, sir.

Q. In 1901 there was a variation of nearly a dollar or about a dollar a thousand miles, wasn't there, between the highest month and the lowest month?—A. Yes, sir.

Q. So that any one month in a year is not a fair criterion of what it is costing a railroad on an average, is it?—A. No, sir.

Q. For 1900, the lowest month was $2.07 and the highest month was $3.15, wasn't it?—A. (After looking at Exhibit 33.) Yes.

Q. Then, it is your opinion that it is not a fair illustration to come here and give one high month, is it?—A. I didn't give you one high month intentionally.

7067 Q. Well, you gave it just the same.—A. I gave it as my statement showed, the report that I got showing the last cost, that our company had.

Q. Your company had charge of the lubrication of that road during all those years, hadn't it?—A. I think so.

Q. The inference from that is, that you are a better inspector than the other fellows; isn't it?—A. No, sir.

Q. No better. What inference did you intend us to draw from the fact that you had reduced the cost without telling us who had charge of it before?—A. Because the man who had charge of it at

Q. But the Galena oil man wasn't brought up on the Pennsylvania Railroad.

Mr. ROSENTHAL. You don't mean the Galena expert?

WITNESS. No, sir, I mean the superintendent of motive power, and he was familiar with the Pennsylvania practices.

Q. But the Galena oil man wasn't brought up on the Pennsylvania road?—A. The Galena man couldn't get his support there any more than I could get the support of the Pennsylvania.

Q. The Pennsylvania doesn't seem to need much support in getting cheap oil. Were you in the railroad business before you were with the Galena company?—A. Yes, sir.

Q. What company?—A. The Wisconsin Central.

Q. What was your position?—A. When I left?

Q. Yes.—A. Traveling engineer.

Q. Civil engineer, you mean?—A. No, sir; traveling engineer.

Q. Not locomotive engineer?—A. No, sir.

7068 Q. What is the position of traveling engineer?—A. A traveling engineer is a man who is expected to look after the condition of the power on the road, instruct the enginemen in their duties as engineers, and look after the general handling of trains, etc.

Q. How many years have you been in the railroad business?—A. About 17 years.

Q. During that time there have been great improvements in all branches of railroad service, haven't there?—A. Yes, sir.

Q. Greater efficiency and more economies?—A. Yes, sir.

Q. Even in firing locomotives—there have been instructions to firemen and engineers which have lessened the cost?—A. Not very materially.

Q. Well, there isn't a chance for enormous reduction, is there?—A. Yes; there is.

Q. You think there is?—A. Yes, sir.

Q. No railroad man has ever thought of it?—A. Yes; they have attempted it.

Q. The railroad men are pretty bright men, aren't they?—A. Yes, sir.

Q. And most of these improvements in their machinery and in their methods of doing business have been instituted by themselves?—A. Yes, sir.

Q. Did the Galena-Signal Oil Company lubricate the Wisconsin Central?—A. Yes, sir.

Q. During the time you were there?—A. Yes, sir.

Q. Give good service?—A. Yes, sir.

7069 Q. As good service as on any road you have?—A. Yes, sir.

Q. And no expert of the Galena-Signal Oil Company has ever been on that road, has there?—A. Yes, sir.

Q. They don't allow them on that road, do they?—A. They did.

Q. When?—A. Early; I don't remember how early.

Q. How many years ago?—A. I remember of Mr. Merrill having been up there at one time and started them in the right direction.

Q. They never have employed the Galena-Signal experts on their line, have they, as a continuous thing?—A. Not that I know of.

Q. They have done it themselves?—A. Yes, sir.

Q. For a good many years they haven't had them on the line at all, have they?—A. Quite a number of years.

Q. Didn't have them on when you were there, did they?—A. No, sir; that was my duty, to look after the lubrication.

Q. And you looked after the lubrication of the road?—A. Yes, sir; while I was traveling engineer.

Q. And the Galena Company hired you from the Wisconsin Central road?—A. Yes, sir.

Q. Then, your opinion is that the railroads themselves could supervise this, isn't it?—A. No; it is not.

Q. They can't do it? You didn't do your work well?—A. I did very well.

Q. I thought you said the Wisconsin Central had been and they are effeciently lubricated, as efficiently as any other road?—A. Because of the right start.

Q. Who started it?—A. Mr. Merrill, of the Galena-Signal

7070 Oil Company.

Q. What year?—A. I couldn't tell you that.

Q. About when?—A. I couldn't tell you that.

Q. How long was he there?—A. I don't know that.

Q. You don't know what he did?—A. I remember distinctly one or two changes that were made.

Q. But you don't know when he was there, how long he was there, or what he did?—A. No.

Q. And with that exception, the Wisconsin Central has never had an inspector of the Galena-Signal Oil Company on its line, since you can remember?—A. Up until when?

Q. To the present time.—A. Yes, sir; they have.

Q. When?—A. Once or twice within the last year.

Q. Once or twice within the last year?—A. Or two years, maybe. They have asked for them.

Q. Well, have they been there?—A. I believe so.

Q. Do you know whether they have or not?—A. From conversation with the purchasing agent, I do.

Q. You know the purchasing agent of the Wisconsin Central has testified they don't have them on their road at all?—A. I don't know when he testified to that.

Q. Did you ever hear that he testified to that?—A. No, sir.

Q. When did you say you left the Wisconsin Central?—A. 1899.

Q. Do you know who the directors were—any of them—during that time?—A. No, sir.

Q. It was commonly known as a Rockefeller road, wasn't it?—A. I didn't know anything about that.

7071 Q. Perhaps that is the reason they didn't want the Galena experts there. You do not know anything about it? All right.

By Mr. ROSENTHAL:

Q. Mr. Turner, from certain exhibits, which either have or will be offered in evidence, it appears that the Pennsylvania road only ran its engines 33 miles on one pint of valve oil, and during that same year the Chicago, St. Paul, Minneapolis & Omaha—the year 1904—ran its engines on an average of 104 miles with each pint of valve oil. So that the Chicago, St. Paul, Minneapolis & Omaha, on one pint of valve oil, ran its engines more than three times as far as the Pennsylvania company ran its engines on one pint of valve oil. Would you say as an expert that that would make any difference in the ultimate cost to those respective roads?—A. Yes.

Q. If the Chicago, St. Paul, Minneapolis & Omaha can run an engine 104 miles on one pint of valve oil, and the Pennsylvania line can run an engine only 33 miles on one pint of valve oil—that is, about one-third as far as the Chicago, St. Paul, Minneapolis & Omaha—that shows that the Pennsylvania company requires more than three times as much valve oil to perform the same service as the Chicago, St. Paul, Minneapolis & Omaha requires, does it not?—A. About that.

Q. And if, under such circumstances, the Pennsylvania company paid 18 cents a gallon for valve oil and the Chicago, St. Paul, Minneapolis & Omaha paid 36 cents a gallon, as a matter of fact the Chi-

cago, St. Paul, Minneapolis & Omaha would be getting its lubri-
7072 cation much cheaper than the Pennsylvania, wouldn't it?—A. Yes, sir.

Q. And during that same year—and I take 1904 because that is the year that the Government has selected to make its comparisons—the Pennsylvania Company was only able to run an engine 17 miles on one pint of engine oil. The Chicago, Lake Shore & Eastern ran its engines 56 miles on one pint of engine oil. That is to say, the Chicago, Lake Shore & Eastern got three times as much service out of one pint of engine oil as the Pennsylvania, did it not?—A. Yes, sir.

Q. And if the Pennsylvania only paid one-half as much per gallon as the Chicago, Lake Shore & Eastern, as a matter of fact the Chicago, Lake Shore & Eastern would nevertheless be getting its lubrication cheaper than the Pennsylvania, would it not?—A. Yes, sir.

Q. Now, the Chicago & Northwestern ran its engines 79 miles on one pint of valve oil, while the Pennsylvania Company ran its engines only 33 miles on one pint of valve oil. If those figures are accurate, even if the Chicago & Northwestern paid twice as much per gallon as the Pennsylvania paid, as a matter of fact the Chicago & Northwestern would be getting its lubrication cheaper, would it not?—A. Yes, sir.

7073 Q. So the mere invoice price per gallon on oil does not make one bit of difference in what it actually costs the road for its lubrication?—A. No, snr.

Mr. KELLOGG. The price the company pays makes a difference, doesn't it?

Mr. ROSENTHAL. Mr. Smith may fool the public, through his reports, but he doesn't fool the railroad man on that, does he?

WITNESS. I wouldn't think so. Most of them he doesn't.

Q. Now, the rapid jump in the cost of lubrication on the Chicago & Alton appears to have begun in the latter part of the year 1899. Is not that just about the time that that superintendent of motive power that came from the Pennsylvania road began his services on the Chicago & Alton?—A. As my memory serves me.

Q. And just about the time he left, the drop began?—A. Yes, sir, or just before he left.

Recross-examination by Mr. KELLOGG:

Q. You give it, as your opinion, do you, that the Chicago, St. Paul, Minneapolis & Omaha got its lubrication as cheap as the Pennsylvania company?

Mr. ROSENTHAL. Oh, no, he didn't.

Mr. KELLOGG. You let him answer, will you, Mr. Rosenthal? You don't have to answer for him.

7074 Mr. ROSENTHAL. I submit that the question ought not to be an intentionally misleading question.

Q. Do you give it as your opinion that the Omaha company got its lubrication as cheap as the Pennsylvania?

Mr. ROSENTHAL. When?

Mr. KELLOGG. In 1904. That is the year you used.

Mr. ROSENTHAL. On what?

Mr. KELLOGG. On its engines.

Mr. ROSENTHAL. On its valve oil?

Mr. KELLOGG. Just let me cross-examine this witness, will you, please?

Mr. ROSENTHAL. I asked him concerning valve oil and engine oil.

Mr. KELLOGG. When you get through I will cross-examine him. Are you through?

Mr. ROSENTHAL. Yes.

Mr. KELLOGG. Very well, then, keep still.

Q. Now, is it true that the Omaha company got its lubrication in 1904, for its engines, as cheaply as the Pennsylvania company?—A. I would judge so, from that basis.

Q. What was the invoice price of oil, to both companies, valve oil, say?—A. 48 cents, to both companies.

Q. What is the price of engine oil?—A. 28.

Q. Now, the Omaha company paid 100 per cent of the invoice price, didn't it, during that year?—A. I presume it did.

Q. Well, assuming it did, it paid 48 cents and 28 cents, didn't it, if it paid 100 per cent?—A. Yes, sir.

7075 Mr. ROSENTHAL. Per what?

Mr. KELLOGG. Per gallon.

Mr. ROSENTHAL. Oh, yes.

Q. Then the Pennsylvania Company paid 18½ cents for what the Chicago, St. Paul, Minneapolis & Omaha paid 48 cents for. Which got it the cheapest?—A. For what?

Q. Per gallon.

Mr. ROSENTHAL. That is not what the witness asked you.

Mr. KELLOGG. Wait until I get through.

WITNESS. That is not the question I answered.

Q. Very well. Which got it the cheapest?—A. I didn't testify on that question.

Q. Well, the Pennsylvania company paid 18½ cents for what the Omaha company paid 48 cents for. Which got it the cheapest?—A. I testified on the lubrication of a locomotive.

Q. Per thousand mile run?—A. The cost of lubrication of a locomotive.

Q. Do you know what the Omaha paid per thousand mile run?—A. I do not.

Q. It paid $1.86 per thousand mile run. The Pennsylvania company paid 74.6 cents per thousand mile run. Which got it the cheapest?—A. Is that for 1904?

Q. Yes, sir.—A. Per thousand miles run?

Q. Yes, sir.—A. Doesn't it depend upon the——

Q. Which got it the cheapest?

Mr. ROSENTHAL. That is not true.

Mr. CRAWFORD. They paid $1.30.

7076 Q. The Pennsylvania company paid $1.30 per thousand-mile run, and the Omaha $1.86. Which got it the cheapest?—A. The entire lubrication?

Q. Yes, sir.—A. That is not the question I answered for Mr. Rosenthal.

Q. Well, which, I say, got it the cheapest?—A. I don't think that question is just as it should be. Mr. Rosenthal gave me the valve oil. You are giving me the total cost of lubrication.

Q. Yes, sir. Which got it the cheapest?

Mr. ROSENTHAL. Can you tell that, unless you have the pint performance?

WITNESS. Not very well.

Q. If you know how much you paid a thousand-mile run for engines, and if you know how much it cost per gallon, you can tell which got it the cheapest, can't you?—A. I don't believe I could.

Q. You don't know anything about which did get it the cheapest, do you?—A. No, sir.

Q. You don't know anything about the conditions on the Omaha road, do you?—A. No, sir.

Q. The weight of trains, engines, or anything else?—A. No, sir.

7077 ETHRIDGE WARREN HAYES, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. CRAWFORD:

Q. What is your full name and address?—A. Ethridge Warren Hayes, Enfield, Connecticut.

Q. What is your business?—A. I am in the mechanical department of the Galena Oil Company; expert department.

Q. How long have you been with the Galena Oil Company?—A. Since the 1st of March, this time.

Q. When did you first go with them?—A. About 1899, I think, to the best of my judgment; early in 1899.

Q. How much of the time since then have you been in the employ of the Galena company?—A. With the exception of three years, continuously.

Q. What three years are those?—A. I have forgotten.

Q. Tell us when you left their employ, and when you came back again.—A. Three years ago I left their employ, practically.

Q. And you have just recently returned?—A. Yes, sir; practically the first of April.

Q. So that your employment with the Galena company, your active employment, really extended from about 1899 to about 1905, is that right?—A. Yes, sir, practically.

Q. Before you entered the employment of the Galena-Signal Oil Company what was your business?—A. I was superintendent of motive power of the Fort Worth & Denver Railroad.

7078 Q. Had you been in the railroad business for a number of years, in different positions?—A. All my life.

Q. With what railroad and in what positions?—A. I commenced with the Burlington & Missouri River as an apprentice.

Q. When, as nearly as you can state?—A. About 1866, I should think.

Q. And then?—A. I went from there as a fireman on the Keokuk & Fort Des Moines.

Q. And then?—A. From there to the Illinois Central.

Q. When was that?—A. In 1868, I should think.

Q. In what position?—A. Fireman.

Q. How long did you stay there?—A. About a year.

Q. And then?—A. To the Lake Shore.

Q. And what position?—A. Fireman.

Q. For how long?—A. For about a year I think.

Q. And then?—A. I returned to the Burlington & Missouri River and was a fireman there for about a year. I left there and went to the Isthmus of Panama and was a locomotive engineer on the Panama Railroad for one year. I returned to the Burlington & Missouri River and ran an engine there. I think four years. I then went to the Union Pacific and ran an engine some years there.

Q. You went to the Union Pacific about 1876, would that be?—A. Yes; I should think along there.

7079 Q. When did you leave the Union Pacific?—A. In one sense, in 1892. I went to Texas. They however, had jurisdiction over that line.

Q. What line was it you went to?—A. The Fort Worth & Denver.

Q. But you left the Union Pacific proper in 1892?—A. Yes, sir.

Q. So you were on the Union Pacific proper about sixteen years?—A. I should think.

Q. Tell me the positions you held on the Union Pacific.—A. Locomotive engineer——

Q. For how long?—A. Ten or eleven years, I think. And I was division foreman for about five or six years.

Q. What is a division foreman, or what was it on the Union Pacific road?—A. I think it could be best described as really an assistant to the master mechanic. I had charge of a branch of the Union Pacific, reporting to the master mechanic; that is, I had charge of the locomotive and car department.

Q. Did that position of division foreman bring you into touch with the question of lubrication?—A. Yes, sir.

Q. You had some oversight over it, did you?—A. Yes, sir.

Q. And, of course, as an engineer of a locomotive, you had it practically?—A. As an engineer I would have it for the one engine that I was running.

Q. When you went with the Union Pacific Railroad, what form of lubricant was being used on the engine valves?—A. They were using tallow.

Q. Was there any change in that regard while you were there?—A. We changed to an oil termed valve oil.

Q. Do you know by whom it was made?—A. No, sir; I do not.

7080 Q. Do you know what valve oil was used there at any time during your stay with the Union Pacific?—A. The latter part of my position there as foreman it occurs to me that it was Sibley's Perfection valve oil; I am not positive as to that.

Q. Is Sibley's Perfection valve oil one of the oils that is now made by the Galena-Signal Company?—A. Yes, sir.

Q. Do you recollect anything about the effect of the tallow lubrication on parts of the engine?—A. Tallow had the effect of making the joints more difficult to keep up; at least we thought that that was the case—the steam-chest joints; had a tendency to—well, I would say honeycomb the metal—the cast iron.

Q. When the valve oil that you speak of was introduced, did that make any change?—A. It relieved that complaint.

Q. What oils were in use on the other parts of the engine and on the cars on the road?—A. In the latter part of my experience I know it to have been Galena.

Q. You mean the latter part of the time that you were on the Union Pacific?—A. Yes, sir.

Q. And the former part of the time?—A. I couldn't say.

Q. Whether it was that or not?—A. No, sir.

Q. Now, you went from the Union Pacific to what road?—A. To the Fort Worth & Denver.

Q. What oils did you find in use there?—A. Galena oils.

Q. All of them?—A. Yes, sir.

Q. What position did you take there?—A. On the Fort Worth & Denver, when I went there?

7081 Q. Yes.—A. Master mechanic.

Q. Did you have oversight over the lubrication, or some of it?—A. Yes, sir.

Q. Was there any Galena expert on the road when you first went there?—A. There was a salesman, an expert, that did his own experting, who came down there a few times.

Q. You don't remember who he was?—A. It occurs to me his name was McVicar.

Q. What did you find about the cost of lubrication, when you first went there?—A. As nearly as I can remember, the cost on locomotives was between three and four dollars a thousand miles, and about 30 or 35 cents on passenger cars; I can't recall the figure on the freight cars, only that it was high.

Q. When Mr. McVicar came down, what took place? Did you talk with him?—A. He talked with me about the high cost.

Q. What was done in consequence of that talk?—A. He suggested that I reduce it, and he suggested measures in order to bring down the cost.

Q. Do you remember what he suggested?—A. Their well-known practices relative to packing the journal boxes with a lesser amount of waste, suggested a schedule for the engineers' guidance in drawing oil, and the saturating of the waste in advance of its being used.

Q. Did you do anything in consequence of his suggestions?—A. I did everything he told me to.

Q. What effect, if any, did that have upon the cost of lubrication?—A. During the years between that time and my leaving
7082 there I can't recall the different costs; I can only recall the costs when I left there.

Q. What were they?—A. The cost on locomotives when I left there, as I remember, was $1.72; about 16 or 18 cents on passenger cars and 7 or 8 on freight cars.

Q. How long a period was that?—A. Six years.

Q. You left about 1898 or 1899?—A. Yes, sir. I was there a total of six years and left a short time after the six years were up.

Q. Do you recollect what the condition on the Fort Worth & Denver Road was in regard to hot boxes, when you first went there?—A. There were a great number; very many; it was the rule rather than the exception.

Q. After you had adopted the suggestions of Mr. McVicar and put them into force, did you notice any change in regard to hot boxes?—A. It practically eliminated the hot boxes; they were an exception.

Q. While you were on the Fort Worth & Denver, do you recollect of a contract being made with some other oil company?—A. Yes, sir.

Q. Tell us about that.—A. I think that the name of the company—this, however, may not be correct—was the Pittsburg Gas & Oil Company. A contract was made with that company by the manager of the Fort Worth & Denver Railroad Company.

Q. How long had that contract to run?—A. One year was the life of the contract.

Q. Were the oils of that company put into use?—A. Yes, sir.

Q. And the road was lubricated with it for some time?—A. Yes, sir.

7083 Q. For how long?—A. I should say five months; it might possibly have been six.

Q. Then what happened?—A. The contract was canceled.

Q. Why?—A. I complained of the results, or the nature of the oil.

Q. What were the results?—A. Hot boxes, delays to the service, increased cost of maintenance of the cars and locomotives.

Q. How did it increase the cost of maintenance?—A. On account of hot boxes.

Q. How does that affect the cost of maintenance?—A. Renewal of wheels, or, in other words, axles, and new brasses, on account of the heat cutting them, wearing them out.

Q. Did you have occasion to notice any effects on the valves and cylinders?—A. The valve oil, I only used a half barrel of that; I

then notified the management of the result that we were getting, which was dry valves and cylinders.

Q. What do you mean by dry valves and cylinders?—A. They were not lubricated; became dry. And we discontinued its use after using a half barrel.

Q. What did you put in its place?—A. Purchased Sibley's Perfection valve oil by the gallon.

Q. And used that?—A. Yes, sir.

Q. Did you have any trouble after you used that?—A. No, sir.

Q. During the period of five months when you were using these other oils, what was the general effect on the service, on the road?—A. It was demoralizing. Complaints were coming from the
7084 traffic department. Delayed trains. I wish to say, in connection with that oil, that we pursued the same practices that were in vogue, at the time of its introduction there—the practices recommended by Mr. McVicar.

Q. That is, you used the same methods that you had learned from the Galena expert, did you?—A. Yes, sir.

Q. Took the same care in packing?—A. Yes, sir.

Q. And were as careful about the various economies?—A. Yes, sir.

Q. And treated your waste in the same manner?—A. Yes, sir.

Q. So that the only difference was in the oils that were used?—A. Yes, sir.

Q. And therefore, in your opinion, the results that you have stated were due to the oils and not to anything else?—A. At that time? The five months?

Q. Yes.—A. Yes, sir.

Q. When you started in using Galena oils, what was the first thing you had to do?—A. We repacked all the passenger cars.

Q. Took out all the old oil?—A. Yes, sir.

Q. And old waste?—A. And took out the waste, yes, sir.

Q. And began all over again, did you?—A. Yes, sir, practically so.

Q. What is cooling compound? That is a phrase that has been used here several times. I don't think it has been explained. What is cooling compound, or what was it?—A. I can't tell you what it is made of, but it is a material that was used to apply to a box that had become heated; that is what it was for.

7085 Q. You mean poured upon the box?—A. Well, it was in the nature of the consistency of grease.

Q. Not a liquid, then?—A. No, sir.

Q. How did you apply it to the box?—A. They plastered it in there, stuffed it in, so as to get it in contact with the journal, the best that they could.

Q. For the purpose of what?—A. Cooling the box down that had become hot.

Q. Did it have any permanent effect upon the box?—A. No; it was temporary. It had a temporary effect, a desirable effect, for the time being; but it put the waste in such a condition on account of

greasing it that the hot box would occur again from the very same material that cooled it off.

Q. Is cooling compound used to-day?—A. I don't know of a place where it is used.

Q. When in your experience did it cease to be used?—A. Well, I ceased using it on the Fort Worth & Denver; I found some of it there.

Q. Why did you cease using it?—A. Because I knew it was bad practice.

Q. Did anything occur to make it unnecessary?—A. Yes, sir.

Q. What?—A. The improved conditions that were adopted by the suggestions of Mr. McVicar made the number of hot boxes less; in other words, we applied the remedy before the disease.

Q. Do you know what that cooling compound cost at the time when it was used?—A. No, sir; I do not; it was there
7086 when I went there.

Q. I mean cooling compound generally—what it was worth. You don't know?—A. I don't know, sir.

Q. Now, on the Fort Worth & Denver, after you had restored the Galena oils and had repacked the boxes generally throughout the lines (as I understood you to say you did) what was the result upon the service?—A. Very desirable. We returned to a normal condition in ten days, I should think.

Q. You mean your——A. The hot boxes ceased.

Q. The service became normal?—A. Yes, sir.

Q. Delays stopped, did they?—A. Yes, sir.

Q. Did the Galena oil continue in use on the Fort Worth & Denver until you left that road?—A. Up to the time of my leaving it was still in use there.

Q. And what was the fact as to the lubrication that you got? Did it continue to be satisfactory?—A. Yes, sir, very.

Q. Where does the Fort Worth & Denver road run? Between what points?—A. From Fort Worth, Texas, to Texline; that was the end of the line proper; and then another line from there to Denver, bearing another name.

Q. What was the mileage of the Fort Worth & Denver?—A. Proper, 500 miles. We took care of the Wichita Valley road, which was 50 miles long, making the mileage which was under my supervision 550 miles.

Q. Do you know how many locomotives you had on that road?—A. No, sir; I can't recall. Some were borrowed.

7087 Q. What is your recollection as to the methods of packing journal boxes before the Galena oils and Galena methods were introduced?—A. Just put all the waste in that you could; stuff it, fill it full, fill the mouth of the box full. That was the method prior to the Galena methods being introduced.

Q. What effect did that have upon the feeding of the oil?—A. The effort to get in as much as we could caused the waste to be packed tighter than it should, and retarded the oil passing through it; filling

the mouth of the box so full as we could was a waste of material, and I think had a tendency to draw the oil from beneath the journal and lead it out of the mouth of the box, from which we realized no service.

Q. What change in that respect was introduced by the Galena people?—A. The Galena's methods, or methods of instruction in packing a box, is that what you wish me to state?

Q. Yes.—A. In the first instance, take a piece of waste the size of my wrist, or larger, possibly; make it into the form of a rope, as near as they can; place it in the rear of the box, very firmly, the object being to close a possible opening that might occur from a well-worn dust guard, and thereby exclude the dust and dirt from entering the box, also preventing oil from running out of the opening referred to. The box is then packed with one or more pieces of waste beneath the journal, terminating at the inside edge of the collar. The waste is kept down on the sides of the box, a little below the center line
7088 of the journal. There is then a piece of waste—term it a wedge or what not—a chunk that is dropped down in front of the box, filling that space, and that is below the mouth of the box half or three-quarters of an inch. It is claimed that it assists in keeping the waste in position under the journal, keeps it from working out, and that is practically all that it does.

Q. Is the practice which you have described the practice commonly employed where the Galena-Signal Oil Company has its experts and inspectors?—A. Absolutely, sir.

Q. And that has been the case, within your experience, since the Galena oils were introduced upon the roads where they were used?—A. Yes, sir.

Q. What is the object of keeping the waste below the center line of the journal?—A. That is a sufficient amount to give you good lubrication, and also lessens the risk of a possible strand of waste getting between the brass and the journal. Where the waste is packed right up to the brass, that is possible. Different reasons might cause it; a sudden application of the brakes, perhaps, or going over railroad crossings, frogs, and so forth. When the strand of waste does get between the brass and the journal it results in a hot box; it breaks the film of oil that separates the brass from the journal.

Q. In respect to the waste itself, is there any economy resulting from that method of packing the box?—A. I should say that it required one-third less waste, and consequently less oil. You would have less waste to saturate or soak.

7089. Q. Is there any difference in the Galena practice as compared with the former practice, in respect to throwing away waste after it is taken out of the box?—A. The Galena recommendations are, to save all waste and use that that may be serviceable—that that has not become destroyed from long use.

Q. What is done with it to make it of use?—A. It is packed over and resaturated.

Q. What was the first road on which you served as a Galena expert?—A. The Cincinnati, Hamilton & Dayton.

Q. That was in 1898 or 1899, was it?—A. It was when I entered their service.

Q. Do you know how long the Galena oils had been in use on that road before you went there?—A. A year, I think.

Q. Prior to the time when the Galena oils were in use on that road, what oils had been used?—A. I don't know the name of the oil that had been in use.

Q. Do you know whether they were reckoned as cheap oils or as expensive oils?—A. I was told the price of the car oil which had been in use.

Q. How much?—A. 7 cents a gallon.

Q. Do you remember any figures in regard to the quantity of that oil used at different points on the road?—A. I remember at Cincinnati, at the point where they took care of their passenger cars, they were using about 1,500 gallons a month.

Q. Explain what you mean by using 1,500 gallons a month.

7090 A. Why, they were using it, consuming it.

Q. Was Cincinnati one of the places where cars were lubricated?—A. Yes, sir. The carmen that took care of the passenger cars, attended to the packing of them and the supplying of brasses when occasion required, and oiling them, consumed, on an average, 1,500 gallons a month.

Q. Were all the passenger cars of the road lubricated at that point?—A. Practically so.

Q. That was a sort of depot for that purpose, was it?—A. Yes, sir.

Q. So that this 1,500 gallons per month, on the passenger cars, was substantially the entire amount that was used on the [illegible]? A. No, sir; there was oil used at other points on passenger cars [illegible] and Toledo.

Q. What was the system about freight cars? Where were they lubricated?—A. There was certain lubrications performed in the Cincinnati yard, but Iverdale was the place where all trains were practically made up, and I would consider it the main point of finally preparing the cars for final preparation.

Q. What was the consumption of this cheap oil?—A. 1,500 gallons a month was the average.

Q. After the Galena oils were introduced, with the Galena methods, what changes took place at those two points?—A. The consumption at Cincinnati, I can't recall that it was over 300 gallons a month, and do recall some months when it was less than 300. At Iverdale the average was about 150 gallons.

7091 Q. That is to say, that after the Galena oils were instituted and the Galena methods put in operation, the lubricating of the passenger cars at Cincinnati required only about 300 gallons a month or less?—A. 300 and less.

Q. And that, similarly, for the lubrication of freight cars at Iverdale, only 150 gallons a month?—A. An average of that.

Q. Where is that railroad situated?—A. It runs from Cincinnati to Toledo.

Q. About how great a mileage has it, or had it at that time?—A. I shall have to guess. I don't know. It is not a very long railroad.

Q. Can't you estimate?—A. Yes; 230 miles, I think.

Q. Do you remember anything about the question of hot boxes on this road, before and after the Galena oils were introduced?—A. It was my understanding that there were a great number of hot boxes prior to my going there, and during the time that I was introducing the methods there. I should change that. During the time that the company was establishing the recommended practices there were a great many hot boxes.

Q. Is any special result liable to happen from the use of too much valve oil?—A. Where an excessive amount of valve oil is used, that which does not adhere to the walls of the cylinder and other surfaces that it comes in contact with passes out through the exhaust nozzle and in time contracts the nozzle—makes it smaller.

Q. Does that have any effect upon the operation of the engine?—A. It gives a sharper draft on the fire and consumes more
7092 fuel than it otherwise would.

Q. Does that clogging of the exhaust nozzle happen nowadays?—A. It is not as noticeable as in years past. It is very seldom that I have seen nozzles that were being cleaned out.

Q. That is one reason, is it, for limiting the quantity of valve oil, apart from the cost?—A. No, sir; I should not say so. The particular reason of reducing the quantity to what is required for proper lubrication is for economy's sake.

Q. But apart from economy, this clogging of the exhaust which you have mentioned would also furnish a motive, would it not?—A. It would; it should, at least, for the railroad men.

Q. What do you think about the matter of the effect upon other parts of the service, of establishing economical habits in regard to the use of oil?—A. I hardly think that you could teach a body of men economy in one particular branch without its having an effect in the same direction in other lines of their duties. It occurs to me it would have that tendency.

Q. What has been the general change in regard to hot boxes now as compared with, say, fifteen years ago?—A. I think we might say that the hot boxes are an exception now, where fifteen years ago it was very common.

Q. What would you say as to the possibility of successfully operating any one of the large systems to-day, if there were as great a percentage of hot boxes as there were fifteen years ago?—A. It seems to me that if we had as great a number of hot boxes as we did some years ago, on these large lines, I don't believe they could possi-
7093 bly operate the same number of trains in the same length of time; I don't think that they could.

Q. Are there any economies that result from the reduction of hot boxes, apart from oil?—A. You would spend less money for brass

bearings, and you would spend less money for journals, or axles, as they are termed, under cars. They would not require the work done to them that they would if they frequently got hot.

Q. Why is that? Does the hot box affect those parts?—A. Yes; it ruins the brass frequently, and some times the journal has to be condemned.

Q. Whereas, if you didn't have the hot boxes you wouldn't have that injury?—A. No; the life of that is lengthened.

Q. Isn't it also a fact that when you have to repair the journals and brasses, that the locomotive may be out of service for a few days or a few hours?—A. Yes, sir. There are instances where we have lost the services of a car or a locomotive on account of a hot bearing.

Q. What would you say was the most essential property about a good lubricating oil?—A. Do you mean what ingredients I would suggest?

Q. No. What is it which makes one oil a good lubricant and another not? What is good lubrication?—A. An oil that will separate the two metals, the brass and the journal, and maintain that separation, that is lubrication, I believe. It would require an oil of quality to do that.

Q. If the oil were of inferior quality, then the separation would not ensue?—A. It would not; no, sir.

7094 Q. Have you generally received cooperation from railroads that you have been on?—A. Yes, sir.

Q. State generally what they do to cooperate with you.—A. On my being assigned to a road do you mean?

Q. Yes; and afterwards.—A. I go to the superintendent of motive power; he gives me a letter of introduction to the master mechanics, a general letter, and others concerned, relative to lubrication. I then endeavor to interest them and gain their confidence as to the benefits they will derive from adopting the practices or methods which we recommend; and as I stated before, I have little or no trouble in getting cooperation.

Q. Have you any authority to give instructions?—A. In some instances the superintendent of motive power might give me quite a little authority; that is, not authority that we would use, but he will write you a very strong letter to his subordinates, to the effect that they will cooperate and accept the recommendations which I might make.

Q. Do you come in contact with the men themselves, with the engineers and roundhouse men?—A. Yes, sir.

Q. What do you do with them?—A. Talk with them and teach them relative to packing boxes, as I have described here to you, for that particular feature.

Q. Do you go through the operation yourself?—A. I have; yes, sir.

Cross-examination by Mr. KELLOGG:

Q. When did you go with the Union Pacific first?—A. In
7095 1876, as near as I can remember. I think it was about that date.

Q. In those days, the use of tallow was common among railroads, for lubricating, wasn't it?—A. Yes, sir.

Q. All railroads were using it?—A. For lubricating the valves and cylinders.

Q. And they used an inferior kind of oil, animal oil, for the other, didn't they?—A. We used a black oil, at the time I speak of. I couldn't say what it was.

Q. And all that method of lubrication has been done away with a good many years?—A. Quite; yes, sir.

Q. The oils have been improved, all kinds of lubricating oils?—A. I think so; yes, sir.

Q. And the old methods have been discarded?—A. Yes, sir.

Q. In all kinds of machinery, isn't that a fact?—A. There has been wonderful improvement in all lines.

Q. Whether railroad machinery or other machinery?—A. Yes, sir.

Q. You don't pretend to say that the Galena-Signal Company has made all those improvements?—A. To the best of my knowledge and belief, the Galena-Signal Oil Company is responsible for the methods I have described relative to the packing of boxes and the methods of teaching the men.

Q. All you know about that is your experience on the Denver & Rio Grande?—A. Fort Worth and Denver. You were asleep when I said that.

Q. Fort Worth & Denver, I mean. Isn't it?—A. Yes.

Q. That is all you know about it?—A. No, sir.

Q. What other lines?—A. I learned their practices when I
7096 was division foreman, that I have testified to here.

Q. On the Union Pacific?—A. Yes, sir. Prior to that I know nothing.

Q. You don't know what other roads have done except those you have been on, do you?—A. That is all I could testify to; yes, sir.

Q. You don't know whether railroad men or Galena-Signal men originally discovered this scheme, or anything about it?—A. As well as I could know anything that I didn't know.

Q. All the men they hired; they hired railroad men, didn't they?—A. I couldn't say as to that; I believe they are.

Q. What company was this Pittsburg Gas & Oil Company?—A. I don't know.

Q. Don't know anything about it?—A. No, sir.

Q. How did you come to make a contract with them?—A. I didn't make it.

Q. Who did?—A. The manager of the railroad.

Q. How did he come to do it?—A. God knows; I don't.

Q. You don't know anything about it?—A. No. I know what I told him I thought about it after he had made it.

Q. What did you tell him you thought about it?—A. I don't know as it is relevant to the case.

Q. You don't know how he came to make the contract yourself, of your own personal knowledge?—A. No; I really do not.

Q. You don't know what company it is, you know nothing about the company?—A. The oil company?

Q. Yes.—A. No; only as I have stated.

7096½ Q. No railroads have used cooling compound for many years, have they?—A. I think not.

Q. Now, at that time, was the Fort Worth & Denver using Colorado or Wyoming crude oil on some of its lubrication?—A. I think—now, I say I think—I think that the Pittsburg Oil & Gas Company handled this oil that you just named.

Q. It was Colorado crude oil, wasn't it?—A. It was crude all right, and I think it came from Colorado.

Q. There was a time when they had an idea that they could use crude oil in lubricating, wasn't there?—A. I don't know.

Q. Tried it on the Baltimore & Ohio, didn't they?—A. I couldn't say.

Q. And it was soon discarded by railroads, wasn't it?—A. All I know is——

Q. All you know is this one instance?—A. Yes.

Q. Well, it was crude oil, wasn't it?—A. Yes; it was crude oil; I guess it was; I don't know but what they may have done something to it.

Q. Did the company that sold it pretend that it was a refined lubricating oil?—A. I don't know what they pretended.

Q. Well, you say cooling compounds have been discarded by railroads for many years?—A. I think so—the lines I am acquainted with.

Q. There are a good many other things that railroads used to do that they have discarded as bad practice; isn't that true?—A. Yes, sir, I believe so; they have adopted modern ideas and

7097 methods.

Q. When was it that the Fort Worth & Denver road was using crude oil, in what year?—A. I can't tell you that, sir.

Q. Well, about the year?—A. It would simply be an absolute guess. Whether it was after I had been there three years I can't say, but it occurs to me that it must have been after I had been there three years—that is, between three years and the end of my leaving—which was a total of six years that I was there.

Q. After you left the Union Pacific, or the Denver road, you went where?—A. To the Galena-Signal Oil Company.

Q. In what year was that?—A. About 1898 or 1899.

Q. Did you go right to the Cincinnati, Hamilton & Dayton?—A. When I left the Fort Worth & Denver?

Q. Yes.—A. No, sir; I had a position offered me in Virginia, on a railroad down there.

Q. When did you go with the Cincinnati, Hamilton & Dayton?—A. My first work for the Galena. I went to the Cincinnati, Hamilton & Dayton.

Q. About when was that?—A. I can't tell you the date; I don't know when I left Fort Worth. I know that I went there, however, in 1892, and I was there six years and a month or two.

Q. That would be 1898. You are sure you went to work for the Galena Company in 1898?—A. Yes; I am quite sure.

Q. And you are sure you went to the Cincinnati, Hamilton & Dayton in 1898?—A. I think so.

Q. What time in the year?—A. It seems to me it was early in the fall.

7098 Q. What company was the Cincinnati, Hamilton & Dayton buying its lubricating oil of when you went there?—A. From the Galena; the Galena had been there a year.

Q. It had been there more than two years, hadn't it?—A. I can't answer that. That is a matter of record; there is no need of my guessing at it.

Q. I thought you said you made the change.

Mr. CRAWFORD. No; he didn't say that.

WITNESS. I didn't intend to.

Q. You didn't make the change?—A. I didn't take the oil there.

Q. The Cincinnati, Hamilton & Dayton contract with the Galena Company commenced October 1st, 1896, didn't it?—A. I don't know.

Q. Of what company was it buying its oil before that, do you know?—A. No, sir; I do not.

Q. You don't know anything about it?—A. No, sir.

Q. So that it may have been buying Galena oils for many years for all you know?—A. Yes, sir. I only heard incidentally, as I testified, as to the price of the oil that they were using on the cars.

Q. That was purely hearsay?—A. Yes, sir.

Q. And your opinion about the poor oils on the Cincinnati company was purely hearsay, was it?—A. Yes, sir. I can tell you what the men said of it.

Q. Well, that is pure hearsay. You don't know anything about it yourself?—A. No, sir.

Q. You don't know anything about the number of hot boxes

7099 previous to that time?—A. No, sir.

Q. There have been a great many improvements in the railroad service, haven't there, in all its branches?—A. Yes, sir; I think so.

Q. Since twenty-five years ago—most marvelous improvements, haven't there?—A. I think so.

Q. Now, you testified to certain reductions in the amount of oil used at Cincinnati, from 1,500 gallons to 300 gallons per month?—A. I did.

Q. Did you know of the use of the 1,500 gallons?—A. That was my understanding of what they used there.

Q. You don't know it of your own knowledge?—A. No, sir.

Q. Was that the amount of oil taken out of the storehouse there?—A. Yes, sir.

Q. Per month?—A. Yes, sir. That was the charges in gallons to the passenger cars at that point.

Q. You don't know how much territory that covered?—A. Yes, sir.

Q. Do you know of your own knowledge?—A. I know that the road didn't grow any shorter after I went there.

Q. Did it grow any longer?—A. Nor any longer.

Q. Well, was all the oil for the entire system measured out of that warehouse?—A. No, sir; there was oil used at other points on the line.

Q. Were any changes in the oil stations made after you came there?—A. We eliminated the oiling at Dayton, as I recall it, and also at Lima.

7100 Q. And took the oil from the Cincinnati place?—A. No; they oiled them at Cincinnati and didn't allow them to oil at those other points. The custom was, in the early day, to oil them as often as you could get a chance at them.

Q. Then you only know what they told you about the 1,500 gallons a month?—A. In a measure, yes. It was my business to know—to know what I was doing—the improvement that I was making.

Q. You thought you made that improvement?—A. I didn't go somewheres and look up the records and see that they were using 1,500 gallons, but it was commonly known, sir.

Q. It was commonly known?—A. Yes, sir.

Q. That is purely hearsay, so far as you are concerned?—A. Yes.

Q. An excessive amount of oil you think is very injurious to a locomotive?—A. It is to the treasury of the company.

Q. And it is to the running of trains—and to the lubrication?—A. It is a disadvantage to the locomotive to use an excessive amount of valve oil, I think.

Q. How long have you been with the Cincinnati, Hamilton & Dayton?—A. I must have been there about five or six years.

Q. It is your inference that they reduced the amount of oil used between 1899 and 1900 on the Cincinnati, Hamilton & Dayton, at this station, from about 1,500 gallons a month to 300 per month?—A. Yes, sir; that is, I can't be positive about the dates that you quote, but——

Q. Now, the record shows that between 1899 and 1900 there was only a saving on freight cars of about ten per cent?—A. Well, I don't know what relation ten per cent would have to what I have stated.

7101 Q. From 1,500 to 300 is a little more than ten per cent, isn't it?—A. That is one particular point, and you are speaking of a system.

Q. What's that?—A. That is one particular point I have referred to.

Mr. CRAWFORD. I object to the question, because he has nowhere said that this 1,500 gallons was part of the Galena oil at all.

Mr. KELLOGG. Well, they were furnishing it all at that time.

Mr. CRAWFORD. Not at all. He said that was the cheap oil, before the Galena contract began.

Mr. KELLOGG. What years was that?

WITNESS. No, you misunderstand me.

Q. Well, go ahead and explain it.—A. What I mean to say is that they were using 1,500 gallons of oil at the time, and it is fair to assume that during a portion of the time they were introducing the Galena oils there.

Q. At what time—the time you went there?—A. No, the beginning of the Galena contract.

Q. In 1896?—A. If that was the date of the contract, that is the time that they were using it.

Q. They were using 1,500 gallons at that station?—A. Approximately; yes, sir.

Q. That was two years before you went there?

Mr. CRAWFORD. No, the contract began November 1st, 1896.

7102 Mr. KELLOGG. October 1, 1896, wasn't it?

Mr. CRAWFORD. That is right.

Q. Now, that was two years before you went there, wasn't it?—A. I should assume so; yes.

Q. You don't know what occurred, then, do you?—A. Only as I told you; I was told so.

Q. From 1896 down we will see what the saving was on the system. Locomotives seem to have increased from the time you went there in 1899 down to the present time every year; passenger cars and freight cars decreased some. In 1897 the cost appears here to have been 13.95 cents; in 1898, 11.78 cents; in 1899, 10.51; in 1900, 9.15. That is not a ratio of 1,500 to 300, is it?

Mr. ROSENTHAL. What are you reading from?

Mr. KELLOGG. Your statistics.

Mr. CRAWFORD. You haven't got our statistics. What years are those?

Mr. KELLOGG. 1897, 1898, 1899, and 1900.

Mr. CRAWFORD. What are you reading from?

Mr. KELLOGG. Your statistics, I said.

Mr. CRAWFORD. Yes, but what are you purporting to read? There are no such figures on these pages here.

Q. Now, Mr. Hayes——

Mr. CRAWFORD. I object to the question because——

Mr. ROSENTHAL. He has withdrawn it. He is just asking questions and answering them.

Mr. KELLOGG. Oh, don't get excited, Mr. Crawford; just keep cool.

Q. Now, that is not any such percentage as you are talking about, is it?—A. You are quoting figures cost per one thousand miles

7103 for the passenger or freight car mileage, I assume, of the C. H. & D. Railroad?

Q. Yes, sir.—A. I was talking about decrease of oil on the two services at two different points. Whether or no that decrease that

I claimed could take place and show those figures you quoted is a matter of mathematical calculation that I can't make.

Q. That is, you don't know whether the 1,500 gallons supplied the same territory that the 300 gallons did?—A. Yes, I know that if I know anything.

Q. How do you know it?—A. Because I know what composed the C. H. & D. Railroad.

Q. The 1,500 gallons was the entire road, was it?—A. No, 1,500 gallons was the entire amount used at this point.

Q. At one point?—A. Yes, sir.

Q. And that was for oiling cars right at Cincinnati, was it?—A. Yes, sir.

Q. You know that to be correct, do you?—A. Yes, sir.

Q. Of your own knowledge?—A. No, sir.

Q. Somebody told you that?—A. Yes, sir.

Q. Well, evidently the whole road didn't save oil, at that rate, did it?—A. No, because they didn't use it at that rate at the other points. If they had, they would have gone into the hands of a receiver before they did.

Q. Well, they went into the hands of a receiver a couple of years ago, didn't they?—A. I presume they did.

Q. After using Galena oils for years. Astonishing!

(Original petitioner's Exhibits 675 and 676 were returned to Mr. Kellogg, and it was agreed between counsel that copies of said exhibits be substituted in place thereof.)

(Hearing adjoudned until the morning of June 1, 1908, at 10.30.)

7104 ROOM 722, CUSTOM-HOUSE, NEW YORK CITY,
Monday, June 1, 1908—10.30 a. m.

The hearing was resumed before the special examiner, Hon. Franklin Ferriss, at the above time and place.

Present: On behalf of the petitioner, Mr. Frank B. Kellogg, Mr. J. Harwood Graves; on behalf of the defendants, Mr. Moritz Rosenthal, Mr. John G. Milburn, Mr. Frank L. Crawford, Mr. W. Cleveland Runyon.

JAMES F. WALSH, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. ROSENTHAL:

Q. What is your full name?—A. James F. Walsh.

Q. Where do you live?—A. Richmond, Virginia.

Q. What is your occupation?—A. Superintendent of motive power of the Chesapeake & Ohio Railway.

Q. And you have been for how long?—A. Six years.

Q. In a general way what are your duties as superintendent of motive power?—A. General superintendent of locomotives and cars; the locomotive department and the car department, and the men employed therein.

Q. Do you have anything to do with the matter of lubrica-
7105 tion?—A. Yes, sir, in a general way have supervision of it.

Q. Do you have anything to do with the making of the contracts for lubrication?—A. Nothing.

Q. Who is it on your road that has to do with that?—A. Practically the president and the purchasing agent.

Q. The president and the purchasing agent?—A. Yes, sir.

Q. What oils are used for lubricating purposes on the Chesapeake & Ohio?—A. Do you mean cars, locomotives?

Q. Yes, sir.—A. Perfection valve oil, Galena engine oil, Galena coach oil, and Galena car oil.

Q. Are those all oils manufactured and sold by the Galena-Signal Company of Franklin?—A. So far as I know; yes, sir.

Q. And how long have Galena oils been used on the Chesapeake & Ohio?—A. I have personal knowledge of that since 1900.

Q. Have they been used there ever since you have been superintendent of motive power?—A. Yes, sir.

Q. What has been your railroad experience?—A. Commencing in 1871 I was employed as an apprentice on the Cleveland, Columbus, Cincinnati & Indianapolis Railroad, at Cleveland, Ohio. From that date until March, 1892, I was employed in the capacity of apprentice, locomotive fireman, locomotive engineer, and shop foreman or roundhouse foreman.

Q. And then what did you do?—A. I was employed by the Galena Oil Company in March, 1892.

Q. In what position?—A. As a mechanical expert.

Q. You were with the Galena-Signal Oil Company of Franklin until you went with the Chesapeake & Ohio?—A. Yes, sir.

7106 Q. What was the first railroad you had to do with after you entered the employ of the Galena?—A. The Queen & Crescent Railroad, between Cincinnati and New Orleans, and Meridian, Mississippi, and Freeport, Louisiana; that was practically the first road.

Q. And what did you do there?—A. I supervised the use of Galena oils on that system.

Q. Were they in use when you went there?—A. Yes, sir.

Q. Can you give us any statement concerning the history of the use of Galena oils on the Queen & Crescent during your time there?—A. Yes, sir. I want to refer to some memorandum books I have in order to give you that definitely, though; so if you will excuse me for a minute I will get the books.

(Witness gets two small memorandum books.)

Q. Were there any improvements that were introduced during the time that you were there, in the matter of lubrication or anything connected with lubrication?—A. Do you mean in the way of devices?

Q. In the way of devices or anything else relating to or connected with the lubrication or the methods of using the lubricants.—A. Let me understand you clearly as to that. There were no devices that I can recall, but of course there were improved methods.

Q. In what way?—A. In the care and economy of the application and general use of the oil.

Q. Tell us about that, if you please—what was done, and how that was brought about.—A. Where they had used very extrava-
7107 gantly the older or the commoner kinds of oils, they continued to use that oil just as extravagantly until taught to the effect that it was not necessary to use the Galena oils in the same way. That was brought about by a general education of the men who used those materials, the men who supervised the use of those materials, as well, with the result that rules were issued, instructions were issued, to the effect that with the Galena oils different practices would maintain and would result in better results than with the ordinary oils that were used previous to the introduction of the Galena oils. That applied to the preparation of packing, the quantity of oil applied for a given distance, the lubrication of passenger and freight cars, and matters of that character.

Q. Were you the first mechanical expert in the employ of the Galena-Signal on the East Tennessee, Virginia & Georgia Railroad?—A. I was; yes, sir.

Q. That was part of the Queen & Crescent system?—A. No, sir.

Q. Was that a separate system?—A. Yes, sir.

Q. I should like to have you tell us exactly what you did in so far as lubrication or the application of lubricants was concerned, when you first took up that road. What condition did you find existing there, and what did you do to remedy the condition that you found?—A. Do you want me to go into detail as to what was done at that time?

7108 Q. See if you can tell us generally first.—A. The general rule—my general method was, where we had followed an ordinary quality of oil with Galena oil, to first go over the system——

Q. Did you do that in that instance?—A. Yes, sir. I am giving you now about what my practice was on that road. I am giving you that, so that you may take it as a general application. Carefully canvassed the entire system, made up, as you probably understand, of many subdivisions; noted carefully the practices that were carried out, that were followed, in the use of the ordinary grades of oil. After that was done, and knowing what could be accomplished with the other oil——

Q. What other oil?—A. With the commoner oils, with the cheaper oils that we always followed—I don't know whom they were made by, I don't know anything about that—but go back then to the superintendent of motive power, ordinarily, and make out a schedule or a list of instructions to his enginemen, firemen, etc., car department men, car oilers, etc., advising them, instructing them, as to what rules should be followed in order that the Galena oils might not be unnecessarily used extravagantly. After that was done, it was my policy to follow up those instructions, whatever they were, and advise with the different division officials as well as the local men in charge of operations, whether it would be car department men or others; if necessary, ride on an engine, so as to thoroughly assure the man in

charge of the engine—assume the responsibility, in fact, of di-
7109 recting him how to use the oils as compared with the others, so that they might not be used extravagantly. That method was followed up from week to week or month to month, as the case might be, according as I could reach the system. That was gone over indefinitely.

Q. Do I understand that when you first went with that road you found other oils than the Galena that were being used there?—A. Yes, sir, there were some left over there, that we used.

Q. And what can you say as to the relative efficiency of the old oils that were being used when you came there, and the Galena oils which were introduced by you?—A. Perhaps I could better state that by an illustration, if you will permit me. Where the other oil had been used in large quantities for a given purpose, we will say, now, a train running between Knoxville and Oakdale Junction—a passenger train; that train was invariably oiled at Knoxville each day, doubled the road each night. In order to illustrate and have the illustration close at hand to the people in authority, the superintendent of motive power and the men in charge of that work—general foreman of the car department—we soaked the packing with Galena oils, and packed the boxes of the cars running in that train. which had, up to that time, been oiled once in twenty-four hours, and ran that train on one oiling for thirty days, covering the same territory.

Q. That is, prior to the introduction of Galena oils, the train ran between Knoxville and Oakdale Junction—a distance of how far?—A. About 100 miles.

Q. It had been the practice to pack the journal boxes
7110 every twenty-four hours?—A. Yes, sir, each round trip—making a run of 200 miles.

Q. And under your supervision, you instituted the practice, with the use of Galena oils, of repacking those boxes once every thirty days?—A. No, not repacking them. We would repack the boxes with packing soaked in Galena oil, and ran it thirty days; thereafter it received only daily attention, regular attention, by the application, when necessary, of a little more Galena oil, but not a renewal of the packing.

Q. Under the old practice you renewed the packing daily?—A. No, sir, applied the oil daily.

Q. Under the new practice you did what?—A. We ran it thirty days on one packing, on one oiling.

Q. On one oiling?—A. Yes, sir.

Q. What did that show with respect to the relative quantity of oil used under the two different systems?—A. It showed decidedly, as was invariably shown, that where Galena oils were used in place of the other oils that with the same quantity of Galena oils you could get many times the same work.

Q. That is under the same conditions?—A. Under absolutely the same conditions, yes, sir.

Q. The Galena would go much farther?—A. Yes, sir, no question about that.

Q. How long did it take you to introduce Galena methods on the East Tennessee & Georgia? Give us some idea of the length of time it took you to inaugurate the system and get it in good running order.—A. I would say not to exceed, in that case, four months.

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Q. Did you get the cooperation of the railroad officials?—A. Oh, the most hearty cooperation.

Q. That is quite essential, isn't it?—A. Decidedly essential; absolutely essential.

Q. What was the next road that you went to? What other roads did you supervise?—A. You better let me refer to some notes on that subject, because I can get at it very much more satisfactorily. [After referring to notes.] I was on so many of them that it is hard to name them without referring to notes. The Big Four was one other; the Cincinnati, Jackson & Mackinaw was another; the Cleveland, Akron & Columbus was another; the Columbus, Shawnee & Hocking was another; the Columbus & Hocking Valley was another; the Columbus & Toledo was another; the Ohio Southern was another; the Central Railway of Georgia was another; the Pennsylvania lines east of Pittsburg and Erie was another; the Monon, or Cincinnati, Indianapolis & Louisville was another; the Air Line, which is now a part of the Southern Railway, was another; the Louisville & Nashville was another; the Nashville, Chattanooga & St. Louis was another; the Mobile & Ohio was another; the Norfolk & Western was another. There may have been some others that I can not at this moment recall.

Q. Were there any of those roads where you introduced the use of Galena oils in the first instance?—A. With the exception, as I recall it, of the Big Four and Monon, I introduced it on all of them.

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Q. And what was your experience on those roads where you introduced the use of Galena oils, they having theretofore used other oils, in so far as the general improvement was concerned in the matter of lubrication after the introduction of the Galena oils?—A. To start in with, there was invariably a very marked reduction in the number of hot boxes, both on locomotives and cars, and the many ills which follow in the train of those hot boxes.

Q. Just amplify that somewhat, will you please? Go into the matter of hot boxes a little more fully.—A. As to the effect of them?

Q. Yes, and as to the change that came in that respect with the use of Galena oils—the importance of it to the railroad.—A. I would say to you, sir, that the reduction in hot boxes, the reduction in hot journals, the train delays, that invariably accompanied the introduction of the Galena oils in the territory that I had supervision of, was always so decidedly marked that it would be very hard for me to estimate the value of the companies in the matter of train delays alone; but it would possibly be a much easier matter, from a mechan-

ical standpoint, to give you an idea of what the saving meant in machinery—journal bearings.

Q. Do that, if you please.—A. For instance, take the value of a journal bearing. Under a 50-ton car, a journal bearing will weigh in the neighborhood of 20 pounds. It will cost at least 14 cents
7113 a pound, ordinarily. That makes the value of the journal bearing $2.80. I can quote you from memory results obtained in that, that would make the value of that of more than a little importance, when I say to you that the reports we received, the information that I picked up day to day, was to the effect that on the Pennsylvania lines alone, on freight cars operating in the territory between Pittsburg and Philadelphia, there was, inside of 90 days after the introduction of Galena oils on that road, a reduction in the number of hot boxes of at least—putting it very mildly, now, and conservatively—two hundred a day, which you can safely say meant a saving, in journal bearings alone, of at least 150, as, ordinarily, a severely hot box (and they are never paid much attention to until they become severely hot) means the destruction of the journal bearing, if not the axle. And then, taking the value as I said, at 14 cents a pound, and, in the days that I speak of, the weight of the brass at 12 cents a pound—I suspect, perhaps, I better put the price higher at that time, it would probably be 15 cents a pound—you can easily reach some conclusion as to what the saving in journal bearings alone means, not considering your train delays, overtime to your men, delay to your freight, and things of that character. When you have a hot journal bearing, you invariably burn up the waste and the oil that is in the waste, in each journal box, which also has its value. Then again, the item of safety, or the threat to your business, due to hot journals, possibly causing the axle to break and derailing your train. Those items are of extreme value, as I
7114 have seen them and as I see them. Now, if you want me to quote anything further, I am agreeable to do that. I can give you other illustrations.

Q. Please do so.—A. Do you want any particular road mentioned? I have a note or two here that I made on the spot and made at the time [referring to papers].

Q. Have you notes which you yourself made?—A. Yes, sir; all I am giving you——

Q. I mean are those notes which you yourself made, which you now have in your hand?—A. Yes, sir; I didn't run the typewriter, though. I dictated them.

Q. Have you any statistical tables that you made up, instituting any comparisons between the old and the new?—A. None at hand.

Q. I don't care for that [referring to a paper handed to Mr. Rosenthal by the witness]. Unless we have the exact data, I don't care to go into it.—A. What do you mean by that?

Q. I mean, in the shape of tables. Because that would be perhaps too cumbersome.—A. Well, I would say to you that at the close of

my day's business it was always my practice to enter up for the day such things of more than passing interest——

Q. Let me look at that just a minute. [Witness hands papers to Mr. Rosenthal.] This is a copy of the statement which you prepared at our suggestion for us?—A. Yes, sir; and such notes as are made in there are copied from my daily memoranda—my daily diary when in the employ of that company.

7115 Q. This contains certain of the data that you speak of, and, in addition to that, is your general statement which you make to us?—A. Yes, sir.

Q. This statement was prepared in our office, wasn't it, under your dictation, under our joint dictation?—A. No, sir; prepared in my own office. Do you mean the Standard Oil Company's office?

Q. Yes.—A. No, sir; it was not. I didn't know you were connected with the Standard Oil Company; that is the reason I asked the question.

Q. Did you make up any figures with respect to the amount of waste and the cost thereof, that was used on the L. & N. road?—A. During the time that I was on the L. & N. road, which covered a period of four years (1898 to 1902) I took, monthly, their printed statements, which I scanned very closely, in which was always included the waste consumption for journal lubrication, and, unfortunately, destroyed all of those printed copies. I thought I had them where I could lay my hand on them, as I had a great many old things stored away, and, not being able to find them, I wrote to the superintendent of machinery of the L. & N. road for a statement, if he would give it to me, of the consumption of waste in the year 1898, I think, compared with 1897.

Q. Have you those figures in mind?—A. Not directly; no, sir. Mr. Crawford, you didn't give me back that paper, did you? I showed it to you this morning.

7116 Q. You mean the copy of the table?—A. The copy of the statement, yes. I have it there some place [indicating].

Q. Is this the statement you have in mind [handing witness a paper]?—A. Yes, sir; that is one of them. There is another one that goes along with it. This is 1898. The other should be 1897.

Q. Is that the other one [handing paper to witness]?—A. Yes, sir. Those were sent me by Mr. Curtis, superintendent of machinery of the L. & N. road.

Q. Well, aside from those tables, in the first instance have you any recollection of any of the data in regard to the waste saving on the L. & N. road for those years?—A. Well, I knew that there was a big saving, but I haven't in mind, outside of what I have here—this doesn't reach by any means what I thought it was; I thought the saving would even show greater than this. Do you mean now as to waste saving?

Q. Yes, sir.—A. This is about as close as I could give you [referring to papers]. I don't want to guess at it.

Q. I understand you have in your hand now a statement showing the total number of pounds of waste used for lubrication of locomotives, passenger cars, and freight cars on the L. & N. for the year 1897?—A. Yes, sir.

Q. And also for the year 1898?—A. Yes, sir.

Q. When did you first go with the L. & N. road, as a Galena expert?—A. In December, 1897.

7117 Q. What had they been using the previous year?—A. They had used, a great part of 1897, Galena oil. For very many years before that they had used some cheaper grade of car and engine oil.

Mr. KELLOGG. How do you know that? Were you there?

WITNESS. Was I where?

Q. Well, you only know what you have been told, as to the kinds of oil they used before you came there?—A. Yes.

Q. You have no personal knowledge of that?—A. Decidedly not; no.

Q. And you began your work there in December, 1897?—A. 1897, that is right.

Q. Were you the first Galena expert to go on that road?—A. No, sir.

Q. Who had preceded you?—A. A gentleman by the name of Palmer was there for a while.

Q. Do you know how long?—A. I don't know. He, as I remember it, was taken sick, and there was another gentleman there, named Seeley, whom I succeeded.

Q. Well, your information is that Galena oils were first used there in 1897?—A. That is my recollection; yes, sir.

Mr. KELLOGG. You mean your recollection, or what somebody told you?

WITNESS. I was told by the people who employed me.

Q. What improvement did you find was effected, in so far as the use of waste was concerned, after the introduction of Galena

7118 oils and the application of their expert service?—A. I have evidence to the effect that in the first year that I had supervision of that work there—and previous to my going there, I wish to say that the matter received rather indifferent attention, on account of those men being sick——

Mr. KELLOGG. You better answer his question. I object to your wandering all around. Please answer the questions of counsel; that is sufficient.

Q. Go right ahead with your answer.—A. That, I must quote to you not from the commencement of the contract, because I was not there, but from the time that I took hold there.

Q. Certainly; that is what I want.—A. And, consequently, as I went there late in 1897 (December, 1897), the basis of comparison I have to look to is practically the year following that. It saved the L. & N. company over a hundred thousand pounds in consumption of waste for lubricating purposes alone.

Q. What would that amount to in dollars and cents?—A. I would say, averaging the cost of waste (I say averaging the cost, because they used cotton waste on freight cars and woolen waste on passenger cars and locomotives) at 9 cents a pound, which would be a fair valuation, it would amount to over $10,000 in waste alone.

Q. These tables which you hold in your hand you got from where?—A. From Mr. Theodore H. Curtis, superintendent of machinery.

7119 Q. They were made up by him?—A. Yes, sir; and taken from their printed statement.

Q. Have you compared them with the printed statement?—A. I have not had an opportunity, sir.

Q. On these other roads, where you instituted Galena oils, in addition to the mere matter of a large saving in the number of hot boxes, what other element of economy came along with the introduction of Galena oils and the expert service?—A. Do you mean outside of the matter of lubrication or the use of oil?

Q. No; I mean other elements connected with the matter of lubrication.—A. Well, as I have said to you before, a reduction in hot boxes invariably followed the introduction of the use of Galena oils wherever I had anything to do with it; and following in that meant, of course, a reduction of cost for journal bearings, for axles, for waste, in train delays, delays to the movement of freight and passenger trains, and where men were educated in economy in that line it invariably led up to economies in other lines.

Q. Were you on the Pennsylvania road at any time?—A. Yes, sir.

Q. What branch of the Pennsylvania system?—A. In the early spring of 1896—I believe in March, 1896—I was sent there to introduce Galena oils on the Philadelphia & Erie grand division, Northern Central grand division, and the P. W. & B. grand division at that time, now the P. B. & W.

Q. And you first introduced Galena oils on those portions of the Pennsylvania system?—A. Yes, sir.

7120 Q. And acted as the Galena expert in that connection?—A. Yes, sir.

Q. What was the result there, in so far, first, as hot boxes are concerned?—A. A very marked reduction in hot boxes, both on their cars and on their engines.

Q. And how about any saving in waste there?—A. There was an immense saving in waste there. There was one month there, in 1897, that I saw a comparative statement in the office of the superintendent of motive power, at Altoona.

Mr. KELLOGG. Now, wait a minute.

Q. You haven't that statement with you, I suppose?—A. No, sir.

Q. Well, I don't care to prove that, then. I will confine myself to primary testimony here.—A. Does that question you asked still hold good?

Q. No, not unless you have personal knowledge of it.—A. Beyond what I was told by the officials in charge, I have none.

Q. You are a railroad man of very wide experience extending over a great many years, Mr. Walsh?—A. Yes, sir, from 1871 up to date.

Q. And since 1902 you have occupied the position of superintendent of motive power on the Chesapeake & Ohio system?—A. That is right, yes, sir.

Q. How large a system is that?—A. About 1,800 miles.

Q. And in a general way it runs from Cincinnati to Washington?—A. And Newport News, Norfolk, yes, sir.

7121 Q. With its branches?—A. Yes, sir.

Q. You are familiar with the form of contract used by the Galena Company?—A. No, sir, not at present I am not. It has been several years since I looked one over; I may say two or three years since I looked one over. But I suppose the basis is practically the same as the one I am familiar with.

Q. What one have you in mind?—A. Where they make a contract to furnish lubricating oils upon a guaranty of so much per mile, or per hundred miles, or per thousand miles.

Q. What do you say, as an old railroad man of experience, as to the advantage accruing to the railroad company in making that form of a contract as opposed to the mere purchase of the oil by the gallon, or on the gallon basis?—A. One of the extreme advantages I would point out would be the fact that starting in with the commencement of your contract you will know, until the ending of the contract, that the maximum cost for lubrication on your railroad will not exceed a certain amount per thousand miles. That is a decided advantage, I would say, from a business standpoint.

Q. And all of the other advantages that you have pointed out in connection with the expert service and the things that in your experience flow from the use of the expert service in connection with the use of Galena oil?—A. Yes, sir.

7122 Q. With all of these railroads where you instituted Galena oils, what was the scope of your authority in connection with your duties as an expert?—A. In most cases, so far as it applied to the lubrication of locomotives and cars, I was given really plenary authority in the matter. I would be given a letter of introduction from the superintendent of motive power addressed to the employees of his department, introducing me as being what I then followed and instructing them to be governed by my recommendations in the lubrication of locomotives and cars. In most cases I was given really plenary authority in the matter; in other cases I was practically given none.

Q. Have you any roads in mind where your authority was limited?—A. Yes, sir.

Q. What road?—A. The Pennsylvania in particular.

Q. And in what way was your authority limited there?—A. To the extent that I was privileged to visit the various terminals on their lines, between Erie and Pittsburg and Jersey City, note the practices followed, and go back to the office of the superintendent of motive

power and make my recommendations to him. That is the extent of the authority that I had on the road.

Q. What was the result of that limitation of authority, so far as the effectiveness of your work on the Pennsylvania was concerned?—A. It naturally interfered with it, very materially, and resulted in my accomplishing but very little in the way of reduction in cost on that railroad.

7123 Q. Were you permitted to talk to the engineers, on the Pennsylvania, concerning methods of lubrication?—A. Well, of course, in a social way, I was, but then, that was my own privilege. So far as business was concerned, or instructions, or even suggestions, to these men, I was not privileged to have anything to say.

Q. The result of that, I suppose, on the Pennsylvania, was that, so far as the Galena expert service was concerned, its effectiveness was practically destroyed?—A. Yes, sir; you are quite safe in saying that that was practically the result of it, compared with what was accomplished on other roads and what could have been accomplished there.

Q. Do you know whether, during the time that you were acting as an expert on the Pennsylvania lines, they put in operation any schedules with respect to limiting the allowance of oil for locomotives?—A. They had some nominally, once, yes, sir, but they were paid comparatively little attention to.

Q. And what was the situation in that respect on other roads where you were doing your expert work?—A. They would issue a schedule, ordinarily issue a schedule, covering the quantities to be used, and the men were required to live up to it.

Q. And part of your work as an expert, I suppose, was to suggest to the road this schedule that you speak of, showing the amount of lubrication that should be used for the locomotives?—A. Yes, sir.

7124 Q. And part of your work was to ascertain to what extent that schedule was lived up to, and if not, why not?—A. Exactly. And, as I told you a moment ago, I was given the privilege or authority to advise and instruct as to how it could and might be lived up to.

Q. In your judgment as an old railroad man, what relation is there between lubrication and the use of fuel?—A. Well, very marked.

Q. In what way?—A. If a journal is lubricated with a gummy or sticky lubricant of any kind it will very materially retard the movement of your train. If a journal is lubricated with a free-flowing oil, it gives you just the opposite result; your train moves much easier, your engine has to work less hard, and consequently you will consume less fuel. That is one feature of it. Another feature of it is that with a poor quality of valve oil, especially where it is used extravagantly, the exhaust pipes of the locomotive will become clogged, and that results, of course, in a more fierce draft and in an increased consumption of fuel. Those are two of the features that I

would mention to you. Of course, there are others that could be mentioned.

Q. And it was part of your duty as an expert to do what, in connection with those features that you have just spoken of?—A. See that the cars were properly lubricated, with the object, of course, of reducing the friction; and see that the locomotives were properly lubricated, so as to avoid the possibility of stopping up the exhaust pipes and increasing the fuel consumption and retarding the freedom of the working of your locomotive.

7125 (L. & N. tables marked "Defendants' Exhibits 34 and 35" for identification, respectively.)

Q. I show you defendants' exhibits for identification, 34 and 35. Will you please tell me what they are? Describe them generally.—A. No. 34 is a statement sent me by Mr. Theodore H. Curtis, superintendent of machinery of the L. & N. Railway, showing the number of pounds of waste consumed in the lubrication of locomotives, passenger cars, and freight cars during the months of January to December, inclusive, 1897. No. 35 gives the same information for the year 1898.

Q. And those are the two papers that you talked of in connection with your L. & N. testimony, that you gave us some moments ago?—A. Yes, sir.

Q. Since you have been with the Chesapeake & Ohio, as superintendent of motive power, has there been any change in the character of the equipment, rolling stock equipment, so far as weight is concerned?—A. Oh, yes, sir. The capacity of our locomotives and cars and the weight of them have increased immensely.

Q. Will you please compare the situation in that respect now with what it was when you went there in the year 1902, and give us an idea of the increase in weights year by year from 1902 to the present time?—A. In 1902 we had a total of 75 locomotives that weighed, say, 184,000 pounds; in the latter part of 1902 we added to

7126 that equipment 5 locomotives, weighing about 193,000 pounds. In the early part of 1903 we added 25 more locomotives, weighing 185,000 pounds. I trust you understand, in giving you those weights, that they are meant to apply to the locomotive alone—that is the term that is used usually—not to the tender.

Q. Yes, sir.—A. We have increased our heavy engines—that is, engines weighing 184,000 pounds or over—by about 230,000 pounds since I have been with the C. & O. road, since 1902.

Q. You spoke of having, in 1902, 75 locomotives weighing approximately 185,000 pounds.—A. Yes, sir.

Q. What was the total number of locomotives that the C. & O. had at that time?—A. 425.

Q. And about what was the average weight of the smaller engines, other than these 75 large ones, that you have spoken of?—A. I would say that the average weight would be 100,000 pounds, and that is liberal.

Q. So that during these latter years you have been introducing the heavier type of locomotive?—A. Yes, sir.

Q. Which makes a change in the weight, in round numbers, of from 100,000 to 185,000 or 190,000 or 195,000?—A. Yes; up to 207,000, and an increase in the boiler pressure as well, which, of course, has a great deal of bearing on the work accomplished and the severity of the work accomplished.

Q. And what would you say was the average weight of your locomotives to-day, taking the system as a whole?—A. I will put it, conservatively, at 150,000 pounds.

Q. As opposed to an average weight in 1902 of all the
7127 locomotives on your system of approximately what?—A. 100,000 pounds.

Q. That average weight of 100,000 pounds was not the average after the introduction of those 75 new 185,000-pound locomotives?—A. Oh, no, sir; I meant that to apply to our old type of engine.

Q. And those 75 came in within what years?—A. 1901 and 1902, as I remember it now. It may have been the latter part of 1900. I don't want to be tied down closely on that. I am quite sure, however, that I am within six months of being right in that.

Q. What about the increase, if any, in the weight of your cars during the last six or seven years on the C. & O.?—A. That has been greater, proportionately, than the locomotives.

Q. Can you give us a fairly close approximation of that? Take the condition in 1902, when you first went there.—A. In 1902 we had 1,000 50-ton steel cars.

Q. How many smaller ones?—A. We had then probably 18,000 smaller ones, smaller capacity cars.

Q. Excluding these 1,000 50-ton steel cars, what would you say, approximately, was the average of the other 18,000?—A. I suppose they would average up 27 tons capacity.

Q. And how much in weight?—A. Probably 28,000 pounds.

Q. When you speak of the 1,000 50-ton steel cars, you mean 50 tons capacity?—A. Yes, sir.

7128 Q. And what is the weight of one of those cars?—A. About 20 tons, 40,000 pounds.

Q. To what extent have your steel cars been increased since 1902?—A. By about 15,000 cars.

Q. That is, as against 1,000 50-ton steel cars in 1902, you now have about 16,000?—A. Yes, sir.

Q. And are those 16,000 steel cars all of 50 tons capacity?—A. Yes, sir.

Q. Weighing about 20,000 pounds apiece?—A. Yes sir. Some of them would run 39 and some of them 41. They average, however, 40 thousand pounds, and 3,000 of them (so as to be entirely correct in the matter) are steel under frame and steel upper frame, with wooden boards; so that there will be no question about the sideboards being wooden.

Q. Then, beginning about the latter part of 1900, or the fore part of 1901, and coming down to the present time, on the Chesapeake & Ohio system, there has been a very marked increase in the weight of your rolling stock equipment?—A. Oh, decidedly.

Q. In the way that you have specifically described it?—A. Yes, sir; both locomotives and rolling stock.

Cross-examination by Mr. KELLOGG:

Q. You were speaking about the East Tennessee, Virginia & Georgia Railroad. What year did you go to that railroad as an oil expert?—A. 1892.

Q. You don't know what oils were used there before you went there?—A. I know that there were oils manufactured in Knox-
7129 ville, Tennessee, or sold out of Knoxville, used.

Q. What company?—A. I don't know the name of the company, sir; I can't tell you.

Q. You don't know whether it was the Standard Oil Company or not?—A. Positively not; no, sir; I don't know.

Mr. ROSENTHAL. You know it wasn't the Galena.

WITNESS. Oh, yes.

Q. There were other Standard Oil companies that manufactured lubricating oil, weren't there?—A. I don't know.

Mr. ROSENTHAL. We will confess right now to competition between the Galena and the other Standard Oil lubricating concerns, and that the Galena is the best of them all, and have driven all the others out of the field, practically.

Mr. KELLOGG. Pulled them out.

Q. You know the Vacuum Oil Company?—A. I know of such a company.

Q. You don't know what company's oils were used, from your own knowledge, on the East Tennessee, Virginia & Georgia Railroad before you went there?—A. I know it was furnished by a company at Knoxville, Tennessee.

Q. You don't know the name of the company?—A. I can't recall it now, no, sir. I did know the name of it, but I can't recall it now.

Q. When did the Galena Company commence its contracts on that line?—A. In the early part of 1892.

Q. When did you go there?—A. In the early part of 1892.

Q. Of course, you don't know anything about the number of
7130 hot boxes on the road prior to your going there, except from hearsay, do you?—A. Practically not.

Q. Or on any of these lines, except from hearsay?—A. Oh, yes.

Q. You only know by hearsay what occurred before you went there?—A. It is hardly fair to put it that way because after introducing Galena oils and Galena methods, which followed, the reduction of hot boxes eternally followed, so far as my experience goes.

Q. That is not the question. You only know the number of hot boxes that occurred before you went there from what somebody told you?—A. Oh, that is correct; yes.

Q. That is what I say. Now, that is true of all the roads you have been testifying to?—A. Yes; certainly.

Q. That is true of the Pennsylvania line, isn't it?—A. Certainly.

Q. And what occurred on the Pennsylvania line before 1896, when you went there you only know from hearsay?—A. Positively, that is all.

Q. You know from hearsay they were lubricating their own road?—A. Yes.

Q. You went on the Louisville & Nashville road in December, 1897?—A. Yes, sir.

Q. And other Galena experts had preceded you?—A. Indifferently; yes, sir. Irregularly, I had better put it.

Q. Other Galena experts had been there before you?—A. Yes, sir.

7131 Q. You don't know how much they were there?—A. Oh, yes; I know they were there part of 1897.

Q. You don't know how much time they spent there except from what somebody told you?—A. Certainly; that is the only way I would have of knowing.

Q. Do you know what oils were used there during 1897?—A. Galena oils were used there during 1897.

Q. All of 1897?—A. No; I think the early part of 1897 they had a considerable quantity of the other oils to use up.

Q. Do you know anything about it except what somebody told you?—A. The L. & N. people told me; yes.

Q. You don't know what oils, prior to 1897, were used on the L. & N. road except what they told you?—A. Oh, no; only what they told me.

Q. Now, this statement of the waste saved, a hundred thousand pounds of waste, you got that from hearsay, did you?—A. I got that from the reports, but my personal obervation, my personal knowledge, was to the effect that an immense reduction in the consumption of waste for lubrication followed my work on the L. & N. railroad.

Q. You don't know what consumption they had prior to your being there, do you?—A. No; but I know what they had when I went there.

Q. You know what consumption they were having when you went there?—A. Yes, sir.

7132 Q. Now, you didn't keep those records, did you?—A. Which records?

Q. Records showing the consumption of waste and oil. They weren't kept by you?—A. I got them every month.

Q. You had to get them from the L. & N. company?—A. Printed forms of the L. & N. company; yes, sir; from the auditor's office.

Q. You kept no records yourself?—A. No, sir; not my own personal bookkeeping, I didn't. I went to the auditor's office of the L. & N. monthly and got them.

Q. You computed this hundred thousand pounds from these exhibits that you have here, 34 and 35, didn't you?—A. Yes, sir; and it surprised me it wasn't more.

Q. The only knowledge you have of that, then, is what you took from these Exhibits 34 and 35; isn't it?—A. And my personal observation while employed on the railroad. My personal observation during the time I was on that railroad gave me every opportunity to watch and see, from day to day, what was being accomplished.

Q. You had no personal observation before you went there?—A. Oh, no. I am simply basing it now on what I saw while there.

Q. You don't know anything about the economies in any other branch of the railroad while you were a Galena expert, do you, except that in the oil?—A. Yes; I certainly do.

Q. You do?—A. Yes.

Q. What economies do you know of?—A. For instance, where men used to, before the introduction of Galena oils——

7133 Q. Oh, I am talking about other economies. You said the economy in the use of oil brought economies in the other branches of the service.—A. I was coming to an illustration of economy of labor, if you will permit it.

Q. What is it?—A. Where they had formerly, before the introduction of Galena oil—I will specify the place, if you desire it.

Q. Go ahead.—A. Out of Bradford, on the Norfolk & Western Railroad, they formerly sent a man to accompany a car every time a pair of new wheels were applied, to ride that car for a hundred miles or two hundred miles on the round trip. After the introduction of Galena oils they were enabled to test them and save the labor of that man.

Q. All you know about the methods and about the oils used on these various roads before you went there you got from somebody telling you, didn't you?—A. This case I quote you now——

Q. Will you answer that question? All you know about the oils used and the methods on these roads, before you went there, or any of them, you got by hearsay from somebody else.—A. Why, certainly; I couldn't get it any other way.

7134 Redirect examination by Mr. ROSENTHAL:

Q. You always saw the existing conditions on these various roads when you first went there, didn't you?—A. Yes, sir.

Q. And it was to those existing conditions that you applied yourself?—A. Yes, sir.

Q. And it was those bad conditions that you found, as you have described them, that you sought to remedy, as an expert?—A. Yes, sir.

Q. And the remedy was, of course, a gradual one; it was not instantaneous?—A. Oh, certainly not.

Q. So, to the extent of the conditions that you found in every instance when you went on a railroad, your knowledge is personal, first [illegible]?—A. Certainly.

Q. And not at all hearsay?—A. I made sure of that in every case, sir; that was my forte, to know what I was talking about, and see the ground before I talked about it.

Q. And with respect to the saving of waste on the L. & N. road, you had personal observation of that also, had you not?—A. I certainly had.

Q. As I understand your testimony with respect to the East Tennessee, Virginia & Georgia Railroad, these cheaper Knoxville oils were in use when you first went there, some of them?—A. Yes, sir; there were some there when I went there.

Q. And the old oils, in other words, had not all been used up?—A. Yes, sir; that is true.

7135 Q. So that you had a personal observation and a personal experience in connection with the use of those Knoxville oils on the East Tennessee, Virginia & Georgia?—A. Well, I had a personal supervision—I won't say supervision of them, but I had an excellent opportunity to watch the results obtained, the consistency of the stuff as it appeared, and I did nothing with it.

Q. You had a personal observation sufficient to enable you to institute the comparison you have spoken of between the connection of the use of that oil and Galena oil?—A. Yes, sir.

Q. And, in addition to all that, you have had behind you a railroad experience, beginning with the year 1872, as I understand you?—A. Yes, sir; 1871.

Q. During many of those years you were a locomotive fireman and engineer?—A. Yes, sir.

Q. And, of course, came in direct, close personal contact with the matter of the lubrication of engines?—A. That is right; yes, sir.

Q. Outside of the finding of other oils on the East Tennessee, Virginia & Georgia, when you first went to that road, did you have that same experience in the way of finding other oils than the Galena oils on other railroads where you instituted the Galena service?—A. Yes, sir; to some extent with nearly all of them.

7136 Q. So that in those cases you had, of course, the same opportunity for personal observation and comparison that you here had on the East Tennessee, Virginia & Georgia?—A. As to the results obtained; yes, sir.

Q. And was it not part of your business as an expert, when you first went upon a new line of road, to institute careful inquiry as to past results that had been obtained with the use of other oils?—A. Certainly.

Q. That was from the beginning the basis of all your work, was it not?—A. Yes, sir.

Q. To seek to ascertain what had theretofore been done, with a view to improving upon that?—A. With a view of seeing how far we could improve with our material; yes, sir.

Q. And therefore in every instance that was the essential part of the very beginning of your work—to ascertain past conditions?—A. Oh, certainly.

Q. And past operations?—A. Certainly; and prescribe future practices, based upon my knowledge of what I was sent there to introduce.

Q. And that knowledge of past results you got, I suppose, from careful inquiry of all of the men that you came in contact with on the road when you began there?—A. Certainly; starting right in with the superintendent of motive power. And then my practice after that was to personally canvass the road and the various terminals before I ever made any recommendation. After that was done, after I became thoroughly familiar with the road, with the conditions, go back and make such recommendation as I knew would give good results with our material.

7137 Q. So that the introduction of Galena methods did not come simultaneously with the signing of the Galena contract?—A. Oh, decidedly not.

Q. After the contract was signed you, as an expert, were sent upon the road that had signed the contract and you studied its old conditions as you found them there?—A. Yes, sir.

Q. With a view to introducing Galena methods and Galena improvements?—A. Yes. And, if you will permit me to say it, it could not be accomplished in either a minute or a month. It required some time. It required oftentimes months to get the real meat out of the cocoanut (you may put it) or to get well established the practices that would result in first-class results to our patrons, because those were our instructions, and economical use of the material as well.

Q. Why was it that it took that time in order to introduce these Galena methods? Can you go into that a little more particularly?—A. Yes; I can. Do you want an illustration?

Q. Yes, sir.—A. Perhaps that would be the best way to give it. We will take a road operating through trains a distance of a thousand miles. It was the practice, before the introduction of Galena oils, to oil that train before it started from the original terminal and oil it again at distances not to exceed one hundred miles, and oftentimes fifty miles apart, to the other end of that thousand miles of road. Those were the old conditions; those were the conditions we almost invariably found. After we got our Galena oils in and the

7138 packing thoroughly saturated with oil, those trains would run invariably from one end of that thousand miles run to the other with one lubrication, with one application of oil. Men were accustomed to use with a free hand—and an extravagant hand—the common material that they had been furnished. You ask why it took that time. It took that time in order to get your men educated, to get out of them the element of fear that had been established by the other oil. Oftentimes you would have to stake your reputation upon what could be done. I will give you another illustration, if you want it.

Q. Go right along.—A. We will take the case of the L. & N. Railway out of New Orleans. Mr. Leed, the then superintendent of machinery, claimed that we were not applying oil enough, that is,

we were not oiling often enough. I assured him that that was certainly being done, and that, with his permission, I would stake my reputation and give him the best kind of an illustration that it was possible to give; that I would go to New Orleans, supervise the application of four pairs of new wheels, which made eight new journals, on a passenger car to be placed in the limited train out of New Orleans for Chicago; I would stake my reputation that that car would run, with new journal bearings, from New Orleans to Chicago, with one packing, under the adverse conditions of having the new axles and the new journal bearings, which are ordinarily supposed to be unreliable. He put me to that test, and it was done. I accom-

7139 panied the car from New Orleans, not to Chicago but to Nashville, along in the latter part of June, probably in the year 1900 or 1899, I wouldn't be sure which. Those journal bearings ran from New Orleans to Nashville just as I told him they would. They received no attention and required no care. The car left Nashville for Chicago without any attention or care. Now, those are things that we oftentimes had to do. Enginemen, locomotive engineers (ordinarily termed enginemen nowadays) would assert that they could not make the mileage with the quantity of oil allowed them.

Q. That is, the quantity of oil that you were allowing them under the Galena system?—A. Yes; that their officials were allowing them under our system. And in those cases I have had to accompany the men, assume responsibility for what was done in the way of lubrication, and prove my case. Once that was done with that individual, it had its weight with others, and we never failed to make good what we claimed, because we, of course, were very careful not to overestimate the thing. I can quote you at least one instance that I have in mind, if that would be any good.

Q. Go ahead.—A. A run that was in operation between Norfolk and Richmond on the Norfolk & Western Railway, called their "Cannon Ball" train. They used three pints of valve oil each way, three pints of valve oil covering each hundred miles. I claimed that the round trip should be made and could be made with a pint, and demonstrated it.

Q. And thereafter was that done?—A. Well, the old gentle-

7140 man who had charge of that particular machine was afraid to do it; and begged me to get him released from it. He was an old hand, and a nervous old gentleman; so I won't say he did it. He begged me to go to the superintendent of motive power and get him released, which I did. He was afraid to do it.

Q. So that this matter of introducing Galena methods of lubrication, the education of the trainmen, is a real and substantial education that takes time to accomplish?—A. Oh, yes, sir; it can't be done by a simple notice.

Q. And that time varies, I suppose, on different railroads in proportion to the conditions that you found existed theretofore and in proportion to the cooperation that you receive from the railroads?—A. Yes, sir.

Q. In instituting Galena oils on these new lines, as you did so frequently, when you came there I suppose you would always find a certain amount of the old oil that had preceded the Galena oils in use?—A. Well, ordinarily, yes, sir. That wasn't always the case.

Q. And a certain amount of the old oil in the boxes?—A. Oh, that was unquestionably so; yes, sir.

Q. And that was a matter that for some time you had to contend with, I presume?—A. Yes, sir.

Recross-examination by Mr. KELLOGG:

Q. When you went to the Big Four Railroad, what oil did you find in use there?—A. Do you mean as an apprentice?

7141 Q. When you went to the Big Four Railroad as a Galena expert.—A. I found the Galena oils there.

Q. They had been there many years, hadn't they?—A. Yes, sir. I succeeded another man.

Q. You didn't put that in service there?—A. No, sir.

Q. When you went to the Monon road, what oil did you find there?—A. I found the Galena oil.

Q. So you didn't put it in use there?—A. No, sir.

Q. When you went to the Norfolk & Western; when was that?—A. That was, to the best of my recollection now, 1897.

Q. What oils did you find in use there?—A. To a large extent a very cheap oil.

Q. Purchased of what company?—A. Mixed by themselves. I don't know whom they purchased from.

Q. They weren't buying their oil of any manufacturing company that you know of?—A. That is my recollection; yes, sir.

Q. They were mixing it themselves?—A. Yes, sir; mixing it themselves.

Q. Mixing their own oil?—A. Yes.

Q. When you went to the Mobile & Ohio; when was that?—A. I think it was in 1899. I believe I can prove it out of these little memorandum books.

Q. What oil was in use there?—A. We introduced the Galena oil.

Q. What oil was in use there?—A. I can't recall the name. A St. Louis oil.

7142 Q. You went there in what year, you say?—A. My recollection is 1899.

Q. What time in 1899?—A. I think I can get it here. I won't be positive as to that. [After referring to a small memorandum book.] No, I won't be positive as to that.

Q. Some time in 1899?—A. I think so; yes, sir.

Q. You don't know what oil they were using when you went there?—A. An oil purchased at St. Louis. I forget the name of it.

Q. You don't know what company?—A. I forget the name.

Q. Waters-Pierce Oil Company, wasn't it?—A. No, sir.

Q. It wasn't?—A. No, sir.

Q. You are sure of that?—A. Oh, yes, sir; I am sure of that. If you could call the name of some other concern there I might remember; I can't recall it now.

Q. They were lubricating their own railroad, weren't they?—A. They were buying it by the gallon, yes, sir.

Q. In 1899?—A. Yes, sir. Now, that is when I went there. Don't tie me too close to that date because it might be 1900, or it might be the latter part of 1898.

Q. You don't remember?—A. I can't remember the exact date, but it was along in 1899, to the best of my recollection.

Q. What other company did you institute this service on?—A. If you will permit me to refer to that memorandum.

Q. You named some of them, didn't you?—A. I named all
7143 of them; that is, all I could recall. All that I gave there are all that I can recall.

Q. Can't you name some more of them?

Mr. ROSENTHAL. All that you named in response to my question, or Mr. Kellogg's question?

WITNESS. What you have got there.

Q. Where are they?—A. I put it in, possibly, on other roads that I can't recall now.

Q. You never put the service in force on any other road now that you remember?—A. Those that I have enumerated there.

Q. What are they?—A. Give me that paper and I will read it.

Q. I havn't got your paper.

Mr. ROSENTHAL. I will call them off to you.

WITNESS. Let me read them from there. I will be better satisfied with that myself.

Mr. ROSENTHAL. I don't want you to read. Queen & Crescent.

WITNESS. Yes, sir.

Q. When did you go to the Queen & Crescent?—A. 1892.

Q. I thought you went to the East Tennessee, Virginia & Georgia in 1892?—A. So I did.

Q. You took both roads at the same time?—A. Yes, sir.

Q. Is that part of the Queen & Crescent route?—A. No, sir.

Q. Where was the Queen & Crescent getting its oil?—A. Previous to from the Galena?

Q. Yes.—A. I don't know.

Q. Previous to the time you went there you don't know?—
7144 A. No; I wasn't the first Galena man on the Queen & Crescent.

Q. Oh, you were not the first Galena man on the Queen & Crescent?—A. No.

Q. Name the next.

Mr. ROSENTHAL. Cincinnati, Jackson & Mackinaw.

WITNESS. Yes.

Q. When did you go to that road?—A. 1896, to the best of my recollection.

Q. What oil were they using when you went there?—A. I don't know whose oil it was. Some outside oil.

Q. If you don't know whose oil it was, how do you know it wasn't a Standard Oil company?—A. It might have been for all I know.

Q. It might have been for all you know?

Mr. ROSENTHAL. You know that it wasn't Galena?

WITNESS. It wasn't Galena oil.

Q. Were you the first Galena man on there?—A. Yes, sir.

Q. What other line?

Mr. ROSENTHAL. Cleveland, Akron & Columbus.

WITNESS. Yes, sir.

Q. That is a small railroad, isn't it?—A. Yes, sir; a very important road.

Q. Small, but important?—A. Yes.

Q. When did you go on that road?—A. Along in the nineties, 1894 or 1895, to the best of my recollection.

7145 Q. What oil was that company using?—A. Some oil other than Galena; I don't know what it was.

Q. You don't know of what company it bought it?—A. No.

Q. Do you know whether it manufactured it itself?—A. I don't think it did.

Q. All you know about it is hearsay, isn't it?—A. All I know about it; yes. I don't know anything about what they used.

Q. Do you remember of seeing any oil there when you went there?—A. I won't attempt to recall that; no, sir.

Q. On the Jacksonville line that you have just mentioned, do you remember seeing any oil there when you went there?—A. The C., J. & M.—that is not the Jacksonville line.

Q. Well, whatever the line was.—A. No; I think our oils were in there when I went there.

Q. You think your oils were in there when you went there?—A. They had been delivered; yes, sir.

Q. What other company?

Mr. ROSENTHAL. Columbus, Shawnee & Hocking.

WITNESS. Yes; that is another coal road there.

Q. How big a road is that?—A. A couple of hundred miles.

Q. When did you go there?—A. About the same time that I went on the Q. & C.

Q. What oils were these?—A. Some ordinary oil; I don't know what it was.

Q. You don't know what company they bought it of?—A. No.

7146 Q. What other company?

Mr. ROSENTHAL. Columbus & Hocking Valley.

WITNESS. That is another line; yes.

Q. When did you go to that line?—A. Along about the same time, along in the nineties; '93 or '94 or '95.

Q. What oil was being used on that line?—A. I don't know whose oils they used previous to my going there.

Q. Don't know anything about it?—A. No.

Q. Or where they got it?—A. No; I don't know anything about it.

Q. Weren't the Galena oils there when you went there?—A. No, sir. I was sent there to introduce them.

Q. What other line?

Mr. ROSENTHAL. Columbus & Toledo.

WITNESS. That is practically the same.

Q. The same answer to that, I suppose?—A. Practically, yes.

Mr. ROSENTHAL. The Ohio Southern.

WITNESS. That is another little road down in there.

Q. What oils were being used when you went there?—A. Some oil purchased in that vicinity; I don't know whose it was.

Q. Don't know anything about it?—A. No, sir.

Q. What other company?

Mr. ROSENTHAL. The Central Railway of Georgia.

Q. When did you go to that line?—A. Along in the early
7147 nineties; latter part of 1892 or early part of 1893.

Q. What oil was that company using?—A. Some oil other than Galena. I don't know where they got it from. They did a good deal of mixing of their own there; mixed grease with their oil.

Q. You don't know what company they bought it of?—A. No, sir.

Q. Don't know anything about it?—A. No.

Mr. ROSENTHAL. Pennsylvania lines east of Pittsburg.

Q. I believe you have testified when you went there?—A. Yes.

Mr. ROSENTHAL. The Erie.

Q. You have never been with the Erie Company, have you?—A. No. Oh, yes, I was, too, over there for a special occasion in connection with Galena work.

Q. When?—A. Along in 1892. I was there a few days on special work.

Q. On the Erie road?—A. Yes, sir.

Q. You were not the regular expert?—A. I don't know that they had one there. They were having trouble with some cheap oil that they were using.

Q. You don't know what it was?—A. I don't know what it was; no.

Q. You don't know what company it bought it of?—A. I don't know; no, sir.

Q. Any other lines you have got there?

Mr. ROSENTHAL. The Monon.

7148 Mr. KELLOGG. He has testified to that.

Mr. ROSENTHAL. The Air Line Railway.

Q. What Air Line Railway?—A. That was the Louisville, Evansville & St. Louis.

Q. And when did you go to that line?—A. Along in the nineties, '95 or '96.

Q. What oils was that company using?—A. They had been using some ordinary, common oil out of St. Louis, I think; I don't know.

Q. You don't know that?—A. No.

Q. Don't know a thing about it?—A. No; I don't claim to.

Q. Any other company?—A. Only those that are enumerated there.

Mr. ROSENTHAL. Nashville, Chattanooga & St. Louis?

WITNESS. Yes.

Q. When did you go to that company?—A. I went there in 1899, I think.

Q. What oil was it using?—A. It was using a Cincinnati oil. I don't know of whom they bought it.

Q. You don't know what company?—A. No, sir.

Q. Don't know anything about it?—A. I don't know from whom they bought it.

Q. Only what somebody told you?—A. Yes.

Q. What time in 1899 did you go there?—A. I can't recollect that, sir.

Mr. ROSENTHAL. Mobile & Ohio. That you have gone into
7149 specifically, and the Norfolk & Western.

Mr. KELLOGG. I think I have covered them all.

Q. Did you ever hear of the Vacuum Oil Company?—A. Oh, yes; I have heard of it.

Q. Ever hear of Swan & Finch?—A. Yes; I have heard of them.

Q. Borne-Scrymser?—A. Yes; I have heard of them.

Q. All Standard Oil concerns, aren't they?—A. You can't prove it by me; I don't know.

Q. Selling lubricating oils, weren't they?—A. I don't know what they are doing.

Q. You never heard?—A. I don't know what they were doing. I have heard of them being around the country, of course, but I don't know what they were doing.

(A recess was here taken until 2 o'clock p. m.)

7150 H. E. PASSMORE, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. ROSENTHAL:

Q. What is your name, please?—A. H. E. Passmore.

Q. What does the "H" stand for?—A. Henry.

Q. Where do you live, Mr. Passmore?—A. Canton, Ohio.

Q. How long have you lived there?—A. About five years.

Q. What is your occupation?—A. Master mechanic of the Toledo & Ohio Central.

Q. How long have you been master mechanic of that road?—A. Ever since I have lived in Canton.

Q. How long is that?—A. About five years. Five years the 10th or 11th of last April, I don't remember which day.

Q. What are your duties as master mechanic?—A. I have charge of the motive power department of that division, or those divisions which are under my jurisdiction, and the shops.

Q. Does that correspond with the position which is known on some roads as superintendent of motive power?—A. No. The superintendent of motive power is the head of the motive department, while the master mechanics are his immediate assistants.

Q. Is there a superintendent of motive power on your road?—A. Yes, sir.

Q. And you rank next to him, then, in charge of the motive
7151 power of the road?—A. Yes, sir.

Q. What other railroad experience have you had besides being master mechanic of the Toledo & Ohio Central?—A. Do you want to know all of it from the beginning?

Q. Yes sir.—A. I served my apprenticeship with the Northern Central Railway at Baltimore, Maryland, Mt. Vernon shops, which was at that time and is now part of the Pennsylvania, or known as part of the Pennsylvania System. From there I went to Altoona for a while, and then to the Norfolk & Western; went there as a machinist, and continued in several capacities until I was finally made general foreman of the division. Then went with the Baldwin Locomotive Works for a year or two.

Q. How long were you general foreman of a division on the Norfolk & Western?—A. About two or three years; I am not positive of that; I don't just remember; I haven't kept any data.

Q. You went to the Baldwin Locomotive Works when? 1896 or thereabouts?—A. No, I think it was earlier than that. I think it must have been about 1893. Let me see.

Q. Well, about when, Mr. Passmore?—A. In the early nineties; I wouldn't like to say positively.

Q. What other railroad companies have you ever been employed by?—A. I left the Baldwin people and went to the Philadelphia & Reading.

Q. In what capacity?—A. As roundhouse foreman, and afterwards as general foreman.

Q. And then where?—A. Then I went over on the Western
7152 Maryland. I was sent over there by the Philadelphia & Reading. They got sort of mixed up in some way on their cars in the interchange of business with the different roads. They sent me over there because I was familiar with the Reading power. I went to Hagerstown, Maryland. From there I went to the Detroit Southern as superintendent of motive power.

Q. How long were you there?—A. Six or eight months.

Q. In these various positions that you occupied did you become familiar with the matter of locomotive, passenger, and freight car lubrication?—A. With some I did and some I didn't. The fore part of it I didn't; the latter part of it I did have experience in that direction.

Q. When did your experience begin in that direction?—A. My experience with locomotive lubrication began, of course, on the N. & W.

Q. The Norfolk & Western?—A. Yes, sir. I was night roundhouse foreman at Radford, Virginia.

Q. And your experience with railroad lubrication generally began when?—A. My general experience was when I went with the Reading.

Q. What lubricating oils did you first come in contact with?—A. The first ones I came in contact with were on the N. & W., but I had some experience with different kinds of oil, I don't know just what the first ones were, but I remember afterwards it was with Galena oils on the N. & W., and so on; but I don't know what oils they were on that road. Then, on the Reading we had Galena oils.

7153 Q. With what measure of success were they used there?—A. What used?

Q. The Galena oils on the Reading.—A. They were all right there. We didn't have any unsuccessful use of them.

Q. When was it that you went with the Western Maryland?—A. I think it was in the latter part of the summer of 1899.

Q. Do you know what oils they were using at that time?—A. We were using several kinds. We got some oils from a firm in Baltimore by the name of Sherwood—either Sherwood Oil Company or Sherwood Bros.; I have forgotten that part of it. I remember it was Sherwood. And then there was—I don't know whether it was the "Red Star" or "Red C" or something of that kind, some oil company of that name.

Q. Red "C" oil?—A. Red "C" oil, or Red Star. I won't state positively just what it was.

Q. Those oils were being used for lubricating purposes on the Western Maryland when you went there?—A. They were used with a mixture that we made with other kinds of oils.

Q. Galena oils were not then being used on the Western Maryland?—A. Not at that time; no, sir.

Q. Do you remember when they began to use Galena oils on the Western Maryland?—A. About 1900 or 1901; I am not just clear, but it was about that time.

Q. How long was that after you became connected with that line?—A. A matter of about a year and a half, I should judge.

Q. During the period of time that they were using these other oils, what success did they have?—A. We didn't have very

7154 good success for the amount of oil we used.

Q. Tell me about that, please, a little more specifically.—A. I will have to tell you in my own way.

Q. Certainly; tell it in your own way.—A. When I went on the Western Maryland I had been accustomed to making a certain amount of oil run a given number of miles, likewise with the waste; both the lubricating and the bearing oils—that is, engine, car, and cylinder oils.

Q. Where did you learn that?—A. On the Reading and the N. & W., both.

Q. Under what system of lubrication? The Galena system?—A. Yes, sir.

Q. You had been accustomed to that when you went with the Western Maryland?—A. Yes, sir.

Q. Now go ahead in your own way and tell your story on the Western Maryland.—A. The amount of oil we were using I thought

too much, and I started to ride the engines, which was part of my duty, and tried to make the oils go as far as the Galena oils, under their system of handling it. I found we couldn't do it, because it was too hard on the machine; didn't have enough lubrication to keep up the work on the engines and cars, so I had to abandon it, and had to go back to the old practice of using the same amount that they had been using before that.

Q. That is, you found that these other oils that were being used on the Western Maryland, when you first went there, when you
7155 sought to make them go as far as you had been able to make the Galena oils go on the Reading and the Norfolk & Western, while you were on those roads, it was impossible to do it by reason of the quality of the oil?—A. That was the only thing we could attribute it to; everything else was equal.

Q. You were seeking to see how far you could make a pint of oil go?—A. Trying to reduce the expense. For instance, we were running our freight trains at that time from Hagerstown, Maryland, to Shippensburg, Pennsylvania, and we were using at that time a double-side lubricator and using a pint of oil to go one way over the road, which was to me a ridiculous amount. When I attempted to feed the same number of drops per minute I had been accustomed to under the oil schedule on the Reading, the cylinders would gum up, breaking the packing rings and cutting the valve seats. With the Galena oils, with that same class of engine, we used to make from 75 to 115 or 120 miles, depending on the service and the kind of road they were running over. We couldn't do that at all with the other oils. The same thing was true with the engine oils under our method of packing boxes and preparing the "dope," as we call it, the mixture of the oil and waste for the journal boxes of the cars.

Q. Did you have any other trouble with these old oils, with the other oils?—A. We had trouble with them from the change of seasons. They would not lubricate properly because they were not adapted to that class of work. For instance, take a winter oil
7156 and a summer oil, you have to have them either heavy or light, depending on whether the temperature is high or low. While I only spoke of the cylinder oil, of those which are subjected to a high temperature, the same thing was true of the car oils and the lubricating oils of the engine, known as the engine oil. We would cut journals, have hot boxes on passenger and freight cars, ruin brasses and sometimes the journals, lay out trains, in short make life generally miserable, with the expense and all attached.

Q. How long after you went with the Western Maryland were Galena oils introduced there?—A. You mean from the time I went there until the Galena oils were introduced?

Q. Yes, sir.—A. I will have to make a wild guess on it, but I think it was about a year and a half, or something like that.

Q. And were you there when the use of Galena oils was inaugurated on that system?—A. Yes.

Q. And how long did you remain after that?—A. About the same length of time that I was there before they were inaugurated.

Q. About a year and a half?—A. About that; maybe not quite that long; maybe a year or a year and a half.

Q. Did the Galena Company put an expert on the road when they instituted their oils?—A. We had an expert visit us; yes.

Q. With what success were Galena oils used on the Western Maryland after they were installed?—A. There wasn't any success at first, but after we got the thing wound up and got the men educated
7157 and got the thing installed, so that the employees got familiar with it, we eliminated a great deal of our hot-box trouble, reduced our expense of lubrication all the way through, and also the repairs to our rolling stock in general, engines, cars, and tenders, and saved a lot of money on waste, as well as the renewal of parts, overtime, delays to freight, and things of that character.

Q. What was the quality of the Galena oil so far as its standing the changes of the seasons was concerned?—A. We got two kinds of oil, a summer oil and a winter oil, both adapted for the season which we ordered them for.

Q. After the Galena system was properly installed in the way you have described, what effect did it have upon the number of hot boxes?—A. It reduced them very materially.

Q. Can you say about how much?—A. No, I wouldn't like to express any data on that, because, while I did have the data, I destroyed it, a matter of a little over five years or something of that kind, and I wouldn't like to trust my memory to make any positive statement, but the reduction was there to the extent that it was quite noticeable; there is no question about it.

Q. Was there any improvement made in any other direction resulting from the use of Galena oils?—A. Besides hot boxes?

Q. Yes, sir.—A. Oh, yes. We didn't break so many packing rings or cut so many cylinders, and we didn't burn up so much coal.

Q. What can you say as to whether or not the introduction of the use of Galena oils resulted in a saving of fuel?—A. It did.

7158 Q. In what way?—A. It didn't gum up the exhaust nozzle and choke the engine to such an extent that it did before we used Galena oils. We used to consume a tank of coal, or nearly so, in a distance of about 45 or 50 miles. It is, I think, 46 miles from Hagerstown to Shippensburg, and we used to take coal at both ends of the road. After that——

Q. That is, after you instituted the Galena oils?—A. After that—I say after we quit running to Shippensburg, or about that time, we instituted the Galena oils. We started to run through Shippensburg over to Rutherford, which is five miles east of Harrisburg, a distance of about 80 miles, and we used to run through with one tank of coal, whereas before that we couldn't make over, I should judge, in round numbers, say 50 miles. When we got the switching done on the road, and things of that kind, it would amount to about that. Another reason of it was that we used to have packing rings and valves blow

out so bad that we would have to use up much more coal, whereas with the Galena we didn't have that trouble.

Q. Do you remember of having made any special examination of the use of valve oil and locomotive oil, while you were using the old oils, before the Galena oils were put on?—A. Yes.

Q. In the run from Hagerstown to some other place?—A. Yes, but I can't give you any date.

Q. You say you can't give the time when you made that test?—A. I can't give you the time or date, but I know we did.

Q. It was during the time that you were using old oil?—A.
7159 Yes, because when I attempted to use the same amount of oil that we would have been allowed to use if we had been using Galena oils, why, we knew it wouldn't hold good, and when the engines came in we would take off the cylinder heads and examine them as to the result of our test.

Q. Did you ride on an engine once in going out of Hagerstown in making a specific test?—A. Yes, I rode on them a number of times.

Q. Give me the result of that experience.—A. I have just given it to you. We would feed as much oil as we should have fed if we had been using Galena oil, and when we would get in we would find the cylinders cut and gummed up and the valve seats gummed or cut, and in particular I remember one engine had both packing rings broken on one side.

Q. That is, you found that to be the result of attempting to use the same quantity of oil that you had theretofore been accustomed to use of Galena oils on the Reading road for the same distance?—A. Well, it wasn't quite as much as we had been getting out of the Galena oils on the Reading road.

Q. And did you thereafter, on the same division, Hagerstown to Shippensburg, which was the division, wasn't it?—A. Yes.

Q. Did you thereafter use the Galena oils?—A. Yes.

Q. And the locomotive valve oil?—A. Yes.

Q. With what success, as compared with the other oils that you have just told us that you attempted to use in the way that you did?—A. The oils would work all right. We would use the
7160 amount that I attempted to use before that. Some of the engineers who had been accustomed to using a large amount thought it could not possibly be done, and I know of several cases where I had to take the cylinder heads off and show that they were all right. The same engineers, with the same engines, in the same territory, and the same kind of service.

Q. That is, after the Galena oils were put in?—A. Yes.

Q. Can you give us any notion of how much in quantity you were able to reduce the use of valve oil on that run, by using Galena oils?—A. Well, in a rough way, with the old oils we used about a pint to every 25 miles, and with the Galena oils, the same kind of engines and similar service and all, I think our limit was 60 or 75. I am not sure, but we did run up higher than that; we ran up as high as 100 and 115 miles.

Q. 60 or 75 up to as high as 100 and 115 miles to the pint?—A. They have run that high, yes.

Q. And 25 miles to the pint while you were using the old materials or oils?—A. Yes, sir.

Q. Now, were there any other improvements that came with the introduction of the Galena-Signal oils on the Western Maryland?—A. In addition to those brought about by the cylinder oil or valve oil?

Q. Yes, sir.—A. Oh, yes, there was. Finally, after the Galena oil men got there, we established the regular Galena practice of packing boxes and preparing the "dope."

7161 Q. How did that differ from the old practice?—A. When I went there everybody had access to the oil house and got out a bucketful of waste and poured a lot of oil on it and packed it in the box. The result of it was there was oil all over the road and we were having hot boxes with it. When the Galena Oil Company came there we prepared it by saturating it in the regular way—regular Galena practice.

Q. What was the effect of that so far as economy in the use of oil was concerned?—A. Instead of using one pound we would only use about half a pound. A matter of about one-half, at least. I wouldn't attempt to give you anything in the way of figures because I haven't any data of that character.

Q. How about the saving in waste?—A. The same thing was true of waste.

Q. You have spoken of "the regular Galena methods." What do you mean by that?—A. I mean by letting the oil and the waste be mixed long enough that the waste will be thoroughly saturated and take up all the oil that it can hold, while the other method is just to pour it out or squeeze it out, and if it got mixed, all right, and if it didn't, all right. You would have one part of it saturated and running over, and the next inch or so from it you wouldn't have anything on it, it would be dry; it wouldn't have time to get in there.

Q. How frequently, while you were with the Western Maryland, after the Galena oils were introduced, did you come in contact with the Galena expert on that road?—A. I don't know. I think he lived there for about six months. I wouldn't like to tell

7162 you how often. I can't tell you that. But whenever he did come on the road he always did come there to our place.

Q. Did you meet him personally?—A. Oh, yes.

Q. In a general way, what was he doing?—A. He was instructing the employees and everybody in the use of Galena oils and the method of handling oil and waste, the method of packing boxes, working the lubricators, the proper way to oil around an engine, etc.

Cross-examination by Mr. KELLOGG:

Q. Mr. Passmore, you said that after they introduced the Galena oil they used to run 60, 70, and as high as 115 miles on a pint of valve oil.—A. I said that.

Q. That railroad kept accurate records of the amount of valve oil to the mile used by its engines, did it not?—A. What did you ask me?

Q. I asked you if the Western Maryland Railroad didn't keep accurate records of the use of Galena oils, showing the number of miles of locomotive mileage to the pint of valve oil.—A. Using Galena oils?

Q. Yes.—A. Whether they kept an accurate record of the Galena oils?

Q. Yes.—A. I did of the amount I used in my business.

Q. The railroad company kept such a record and reported the same to the Galena-Signal Oil Company, didn't it?—A. I don't know. I wasn't the head of the railroad company.

7163 Q. You weren't the head of the railroad company?—A. No. I did as far as my division was concerned.

Q. What year was that, 1904?—A. No.

Q. What year was it?—A. It was somewhere along when they used the Galena oils, about 1900; I am not positive whether it was 1900 or 1901.

Q. I show you a statement in this case made by the Galena-Signal Oil Company, Petitioner's Exhibit 208, which shows for the year 1904 that the locomotives on the Western Maryland road only made 49 miles per pint of valve oil.—A. Do you want me to look at it?

Q. Yes, sir; look at it. Figure it out if you want to.—A. I don't want to figure it out.

Mr. ROSENTHAL. Was that before or after you left the road?

WITNESS. I wasn't on the road in 1904.

Q. If that statement is correct, you must be mistaken as to the number of miles the engines ran per pint of valve oil?—A. I am not mistaken at all.

Q. Did you keep a record of all the engines on the road to see what they used?—A. The question asked me in that direction was how many miles they made per pint. I am talking about my actual experience with those locomotives.

Q. You went out and made a trip on a locomotive, did you?—A. Yes.

Q. And kept track of the amount of Galena oil it used?—A. I did, yes, sir.

7164 Q. You kept track of the number of miles it made on a pint of oil?—A. Yes.

Q. Were you trying to make a record run?—A. No; I was trying to see——

Q. How many trips of that kind did you keep track of?—A. I couldn't tell you that. I had a lot of them.

Q. Did you keep a record of every run you made on that road?—A. I don't remember.

Q. How many do you remember of keeping a record of?—A. I don't remember how many I kept a record of. I told you before I haven't got that data. I did have that data.

Q. You did have that data?—A. Yes.

Q. This statement for the year 1904 shows 49 miles—average mileage—per locomotive per pint of car oil. Now, you think you did a good deal better than that the year you were there?—A. I don't think anything about it.

Q. You know you did?—A. I know what I am talking about.

Q. Do you think all the engines made such a record as that?—A. I didn't say so.

Q. You have no idea what the average on the road was?—A. I don't know what the average on the road was——

Q. Don't know anything about it?—A. Wait a moment—because there were other divisions over which I had no control.

Q. You had control of one division, had you?—A. What was known as the western division.

Q. What was your position?—A. Known as assistant mas-
7165 ter mechanic or assistant master of machinery.

Q. Did you run on the locomotives often?—A. I used to go once or twice a week possibly; sometimes oftener and sometimes not as often.

Q. They put on the Galena oil while you were there, did they?—A. Yes.

Q. Now, you say the methods of lubricating were entirely different after the Galena expert came there?—A. I didn't say that.

Q. I thought you said they used a different system.—A. Now you are telling me what you thought. I am telling you what I said.

Q. I thought you said after the Galena expert came there you had a system of thoroughly saturating the waste.—A. What made you think that?

Q. Isn't that what you said?—A. I said part of that.

Q. Part of what?—A. Part of what you said.

Q. Is that what you did say?—A. Now, listen. You can't ask me a question and answer it at the same time.

Q. What did you say about the system of lubricating?—A. I said that before the Galena people came there it was running in a haphazard way, when I first went there it was in that condition, and that I attempted to put into practice those practices which had been taught and learned from the Galena methods on the Reading, and that after the Galena people got there they did put in the same practices as were in existence on the Reading.

7166 Q. You "attempted." Did you put them in force, or did you attempt to put them in force?—A. I attempted to put them in force.

Q. Did you do it?—A. I did not.

Q. You did not?—A. Because I didn't have the goods to work with.

Q. Oh, you didn't? But you had the waste, hadn't you?—A. Some kinds.

Q. Did you soak the waste in the same way the Galena expert did?—A. I tried to.

Q. Did you do it?—A. Yes, we did it on some occasions.

Q. On some occasions?—A. We tried to do that.

Q. Well, did you?—A. Yes.

Q. All over the system?—A. No; not all over the system. We did on my division.

Q. You put in force the Galena system of soaking the waste on your division?—A. I will have to modify that, because we didn't have the regular boxes that we afterwards had. We used buckets and tubs to soak it in.

Q. Well, you didn't put it in force?—A. Yes, we did put it in force.

Q. Which is it?—A. We did in a way. I want to qualify my remark, but you are trying to ask me the question if I have quit beating my wife.

Q. Well, I want to know just what you did.—A. I will have to answer you in that way, that I never beat her. I am trying to tell you what I did do.

7167 Q. Did you put them in force on your division, or did you not?—A. We tried to put it in force, but failed because the quality of the waste and the quality of the oil which we were using at that time was not sufficient to stand up to the work the same as it did afterwards.

Q. Well, you don't buy the waste of the Galena-Signal Oil Company, do you?—A. No; but the kind of waste we were getting was not as good as that which was recommended afterwards by the Galena people and their experts.

Q. That was the fault in buying the waste, wasn't it?—A. No; the fault was because we didn't know enough to buy the right kind when we did buy it. But I don't buy the waste.

Q. The railroad officials didn't buy the right kind of waste?—A. That was one point.

Q. And they didn't have the tubs and facilities to mix it?—A. Yes; we did have the tubs, but we didn't have the right kind of oil to mix in the waste.

Q. Of whom did you buy the oil when you went there?—A. We bought it from an oil company, as I told you, in Baltimore, by the name of Sherwood. I don't remember the detailed name any more.

Q. As a matter of fact, the Western Maryland bought stocks and mixed them themselves, didn't they?—A. They bought different kinds of oils.

Q. And mixed them themselves? The lubricating oil that they were using was their own mixture?—A. They would buy stock oils and mix them up with animal fats and other matters.

7168 Q. That is an old-fashioned system that has been done away with on railroads for many years?—A. I don't know about all the railroads in the United States. I know it has been done away with where I have been.

Q. They did not buy of any company selling a regular railroad lubricant?—A. Yes; we did, too.

Q. They bought stocks and mixed them themselves, you say?—A. We did in some cases, and in other cases we bought the regular oil; we didn't mix that.

Q. Of whom did you get that?—A. From a Baltimore firm. Either Red "C" or Red Star, I am not positive.

Mr. ROSENTHAL. Durand will give you that exact name.

Q. Engine oil, you say, they mixed themselves?—A. We mixed it sometimes, and then we used to buy from another firm. In Philadelphia we bought oil already mixed.

Q. You bought all kinds of oil, then?—A. Yes; different kinds.

Q. And a good deal of it was mixed by the railroad company?—A. Some of it was mixed.

Q. And some of it wasn't?—A. Some of it wasn't.

Q. Who had charge of the lubrication of that road?—A. The head of the motive department.

Q. Who was that?—A. A gentleman by the name of David Holtz.

Q. What year did the Galena-Signal Oil Company take the contract on that road?—A. I don't know anything about when they took the contract.

7169 Q. When was it they put their oil in?—A. That was about 1900.

Q. Now, the railroad company during those years kept an accurate record, didn't it, showing the amount of oil used per mile of locomotives and cars?—A. I wouldn't like to say they did or didn't.

Q. That is customary among railroads, isn't it?—A. I can't answer for all the railroads.

Q. It is customary among the railroads where you have worked, isn't it?—A. It has been customary where I have worked.

Q. And you don't know whether they did that on the Western Maryland or not?—A. I know I did in my office.

Q. To whom did your report go?—A. I reported it to my superior.

Q. You don't know what the others did?—A. My duty ended in reporting it to my superior.

Q. You don't know whether the railroads kept any accurate record or not?—A. I wouldn't like to say as to that.

7170 MICHAEL MEEHAN called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. CRAWFORD:

Q. Mr. Meehan, where do you live?—A. Chicago, Illinois.

Q. What is your business?—A. At the present time expert of the Galena Oil Company.

Q. How long have you been so employed?—A. Since the fall of 1897.

Q. Prior to 1897 what was your business?—A. Traveling engineer.

Q. Of what railroad were you traveling engineer?—A. Duluth, South Shore & Atlantic.

Q. State, briefly, what your railroad experience has been from the beginning.—A. An apprentice in a shop, afterwards fireman, then locomotive engineer.

Q. State each different road.—A. Started first on the old Marquette, Houghton & Ontonagon, which was afterwards absorbed by the Duluth, South Shore & Atlantic.

Q. Between what years?—A. Until 1897.

Q. You were not fireman and machinist all that time?—A. No; I was a locomotive engineer.

Q. All that time?—A. Between the shops and the road; yes, sir.

7171 Q. Between what?—A. My work in the shops and on the road.

Q. Weren't you connected with the Detroit, Mackinac & Marquette?—A. Yes, sir; that was the road I worked on originally as an engineer before I was made traveling engineer.

Q. That is a different road from the Marquette, Houghton & Ontonagon?—A. Yes, sir.

Q. When were you with the Detroit, Mackinac & Marquette?—A. I went there in 1880.

Q. Did I understand you to say that that was absorbed by the Duluth, South Shore & Atlantic?—A. Yes, sir.

Q. Then you continued with the consolidated road, did you?—A. Yes, sir.

Q. As a locomotive engineer?—A. Yes, sir.

Q. For how long?—A. Six years.

Q. What was your occupation after that?—A. Traveling engineer.

Q. Traveling engineer for the same railroad?—A. Yes, sir.

Q. How long?—A. About six or seven years.

Q. And then?—A. I went into the service of the Galena Oil Company.

Q. In order to make this clear to the court, I wish you would state how many years you served as a locomotive engineer on these different lines as a plain locomotive engineer.—A. About eight years.

7172 Q. And how many as a traveling engineer?—A. About seven years as traveling engineer.

Q. As a traveling engineer did you have to do with the subject of lubrication?—A. Yes, sir.

Q. What did you have to do with it?—A. Look after it in a general way as any road foreman would have to, or traveling engineer, in the interests of the company he was working for.

Q. State a little in detail what your work in that respect was.—A. When I was first appointed traveling engineer the superintendent of motive power said he was going to put some new oils on the road and was going to make a test. We used what is called a West Virginia clay to make the tests with. He requested me to set aside a train and have it properly packed, according to his instructions, to make the test on. Afterwards I was instructed to look after the question of

general lubrication on the locomotive, and had charge of it on the cars also, changing from the old method we had before that up to that time.

Q. When did you first have experience with the Galena oils or with the Sibley Perfection valve oil?—A. With the Sibley Perfection valve oil was along in 1873, I think it was. I was firing at that time.

Q. Prior to that what oil were you using for cylinder lubrication?—A. Tallow.

7173 Q. After you began to use the Sibley Perfection valve oil, did you thereafter use any other oil for valve purposes?—A. Not while I was running an engine.

Q. What did you observe as to the difference in action between the tallow and the Sibley Perfection valve oil?—A. The tallow contained a given amount of acid, which had a tendency to pit away the steam pipes of the cylinders and the packing, and such as that, which was very destructive. We had no trouble with the cylinder oil or Perfection valve oil after we had changed over.

Q. This Perfection valve oil that you speak of is the oil which is now made by the Galena-Signal Oil Company?—A. Yes, sir.

Q. Formerly made by the Signal Oil Company?—A. I believe so.

Q. Before the union. It is commonly known, is it, as Sibley Perfection valve oil?—A. I have always understood it that way.

Q. You have so known it yourself since 1873?—A. Yes, sir.

Q. When Perfection valve oil is spoken of among railroad men, they mean what sort of oil?—A. Sibley's Perfection valve oil, as far as I know.

Q. An oil which is made for valves, now sold by the Galena-Signal Oil Company?—A. Yes, sir.

7174 Q. When you became a Galena expert, on what railroad did you take charge?—A. First, I was on the Grand Trunk Railway of Canada.

Q. How long were you with the Grand Trunk of Canada; I mean to say, how long were you supervising the Grand Trunk of Canada?—A. Until 1898 or 1899, somewheres about that time.

Q. That is one or two years?—A. Two years and a half.

Q. When you went to the Grand Trunk what oils did you find there in use?—A. I couldn't call the names of them. They had a whole lot of what you might call crude stock, crude stuff that they were using there.

Q. They were not, at any rate, the Galena oils?—A. No, sir.

Q. Were these the oils that were in the boxes of locomotives and the cars when you got there?—A. Yes, sir, and in a great many of their storage tanks.

Q. How long after you took charge were the old oils used?—A. It took pretty near nine months before we got the old stuff worked up.

Q. What do you mean by working the old stuff up?—A. We had to work the old stock off on the road before we could work with our own; get the refuse out of the bottom of the tanks so it would not injure our oils.

Q. Do you mean to say you used up all the old oils there were in the tanks?—A. Yes, sir.

Q. Before you began to use the Galena?—A. Yes, sir.

Q. So that for a number of months after you went to the Grand Trunk the road was really being lubricated with the old oil?—

7175 A. To a certain extent. Where they had large stocks of old oil on hand we used them up, putting in our new oil when we got an opportunity.

Q. You don't remember the name of the concern that made those oils?—A. No, sir, I do not.

Q. After the Galena oils got into general use on the Grand Trunk road and the old oils had been eliminated, what did you notice in regard to the lubricating service?—A. We got along splendidly; we had very little trouble; and improved the mileage altogether; made quite a reduction in the amount of oil handled.

Q. What did you find as to the quantity of oil which was needed to lubricate a given engine for a given distance, as compared with the old oils?—A. We made a reduction of 50 per cent in the quantity of oils used; cut it square in two.

Q. Do you mean that you saved half?—A. Yes, sir.

Q. Or that you used only one-half as much in quantity as you did of the old oil?—A. Yes, sir.

Q. What was your experience with hot boxes before the introduction of the Galena oil on the Grand Trunk road?—A. They were very numerous. I couldn't tell you just how many. But shortly after we introduced our oils and we got things running pretty smooth we kept a record, established a record, and after eighteen or nineteen months they gave me a statement showing a saving of 33⅓ per cent.

Q. You mean a reduction of one-third in the number of hot boxes?—A. 33⅓ per cent in the number of heated bearings on the system.

7176 Q. That is one-third, isn't it?—A. About.

Q. In other words, you mean, after this period—how long was this, one year?—A. About eighteen months.

Q. After eighteen months the hot boxes had been cut down to about two-thirds the number they were before?—A. Very easily that, with the improved service and faster trains.

Q. Now, you returned to the Grand Trunk road at a later date?—A. In 1901.

Q. You had several other Canadian roads at the same time, hadn't you?—A. Yes, sir; quite a number.

Q. You were also connected with the Boston & Albany road?—A. No, sir.

Q. Never?—A. That was the Bangor & Aroostook.

Q. When was that?—A. Just as soon as I returned to this country.

Q. What other road in the United States have you had to do with?—A. The New York, New Haven & Hartford; Delaware & Hudson; Pontiac, Oxford & Northern; Chicago, Rock Island &

Pacific; Colorado & Southern; Fort Worth & Denver City; Trinity & Brazos Valley.

Q. When were you an expert on the Rock Island?—A. Two years the 18th of last October.

Q. Do you mean two years prior to the 18th of October?—A. This last October made two years; three years October coming.

7177 Q. You went there in October, 1905, is that right?—A. Yes, sir.

Q. Do you happen to know what the present or recent record of hot boxes on the Rock Island system is?—A. I have not seen it recently. They are very few. We have very few in the passenger service.

Q. How about the freight service?—A. We make about fifty to sixty thousand miles to a hot box; maybe better.

Q. Fifteen or sixteen years ago what was the distance that would be made, ordinarily, for a hot box?—A. Do you refer to some specific line?

Q. No; generally, in your experience.—A. If you would make 10,000 miles you would be very lucky; wouldn't make that.

Q. What have you to say as to the injurious effects of hot boxes where they occur frequently?—A. If they were very serious it might possibly mean death and loss of property. Then, the matter of labor and other things.

Q. But the immediate effect is——A. To delay trains.

Q. What effect does that have on other trains?—A. Upsetting the regular schedule of other trains, opposing trains, trains following.

Q. What would you say generally as to the number of hot boxes occuring to-day on American railroads, or at least upon the roads with which you have had more or less to do, as compared with those occurring in your earlier railroad experience?—A. In my

7178 earlier experience it was a hard matter to get a train over the road, freight or passenger, without quite a number of them occurring.

Q. And now?—A. Now, where I am working at the present time they are almost eliminated—that is, in passenger service; on freight trains there are not so many as there used to be.

Q. To what do you attribute the great improvement in respect to the number of hot boxes on American railroads?—A. The introduction of Galena oils, and the methods as practiced by the railroads, as suggested by the expert.

Q. Now tell us what you have done in the different instances where you have gone on a railroad as an expert the first time.—A. Getting a letter of introduction from the superintendent of motive power to his subordinates, instructing them to give me every facility to see what their conditions were; look the situation over and return to him, after I had made a check of the quantity of oils they had on hand, and we would get together and adopt a schedule for the proper lubrication of locomotives, where one had not been in existence, and with the car department would make suggestions in regard to saturating

our waste and draining it in our regular methods—the same as it has been reported by many others.

Q. What authority was given you on the different railroads in respect to lubrication?—A. Every authority that I asked for, in regard to reduction of quantities used; that is, they gave me every facility possible. And where men did not act in harmony with
7179 me, I was assisted with the proper officials; they would look into the case and straighten it out for me, or straghten it out themselves.

Q. Were you permitted to talk with the men themselves?—A. Yes, sir.

Q. And advise them as to what they ought to do?—A. Yes, sir.

Q. Give them instructions, if you didn't think they were doing the right thing?—A. Yes, sir, all kinds of instruction pertaining to the question of lubrication.

Q. Are those instructions usually followed?—A. In nearly every case.

Q. And if not——A. Trouble is liable to result.

Q. What do you mean by that?—A. The man is hauled over the coals, as we call it.

Q. By whom?—A. His immediate superior.

Q. In the railroad?—A. Yes, sir.

Q. In other words, the railroad officials back you up, do they?—A. Yes, sir, they do.

Q. And they cooperate with you?—A. In every way.

Q. Now, have there been any instances in your expert experience where you have not received that cooperation?—A. Yes, sir.

Q. Where?—A. The Bangor & Aroostock.

Q. Tell us about that.—A. Well, the man is dead now, so——

Q. You need not mention his name. I don't think the other side will care for his name.—A. He gave me no assistance whatever; allowed the men to use as much oil on the locomotives as they
7180 cared to, and the cars the same way; so that it was impossible to get any kind of results whatever.

Q. When was that?—A. In 1898 and 1899, when I returned to this country.

Q. What did you say was the result of that lack of cooperation?—A. Very expensive lubrication. We didn't get the miles out of the oil that we wanted to.

Q. What do you do in regard to the boxes, about keeping them properly packed? Have you any system about that?—A. What kind of boxes?

Q. I mean the bearing boxes—the journal boxes.—A. The freight car boxes?

Q. Freight or passenger.—A. Every fall and spring we arrange to have them all cleaned out thoroughly and repacked; in fact, all cars—we call it—go over the "rep." track, or repair track, and the packing is all withdrawn and worked over.

Q. Then, are the boxes ever looked at between times?—A. Yes, sir; every time they go to an inspection point they are felt of—trains passing through.

Q. How often is that?—A. On an average once every six months. If they should get warm at any time, they are treated at once, at the treating station.

Q. On any of the roads that you have experted on, is there any rule about the quantity of oil that is to be used—the allowance, or anything of that sort?—A. In what particular way or feature do you mean?

Q. I mean to say, is any effort made to get the engineers
7181 to use not more than the stipulated quantity of oil?—A. Yes, sir.

Q. What is the system?—A. A regular schedule is made out, according to the size of the locomotive and the service that she is in, expecting to make a given number of miles to a pint of valve oil, a number of miles to a pint of engine oil, and they are expected to live up to this.

Q. What is done with this schedule?—A. It is posted in the different roundhouses and shops, on the different bulletin boards, for the benefit of the engine men.

Q. And the men are expected to live up to that?—A. Yes, sir.

Q. Suppose they don't?—A. They are written very strong letters by the master mechanics in connection with that matter.

Q. And what is the result of that practice?—A. The result is very favorable towards miles to the pint of oil.

Q. That is, towards economy in the quantity of oil?—A. Yes, sir.

Q. Do the officers of the railroads where you are expert ever come and inquire how you are getting along?—A. Yes, sir.

Q. What do they say?—A. They ask me if I am getting the proper cooperation and assistance from their subordinates.

Q. Anything else?—A. If I tell them I am not (if I have
7182 occasion to) they will straighten it out themselves very quick—take it up with their subordinates.

Q. What is your opinion as to the effect of economy in the use of oils upon any other branches of railroad service?—A. Outside of the question of lubrication?

Q. I will ask you another question. Is there any advantage in educating railroad men in the economical use of oil outside of the mere saving of oil?—A. Yes, sir.

Q. What?—A. Where a man is properly instructed in regard to the use of oils, its economical results, he is naturally more saving in his smaller tools and supplies used on a locomotive, and naturally is more saving in his fuel—which is quite an item on a railroad; all of which tends towards a betterment of the locomotive service.

Q. What do you think of this question: Would present high-speed trains be run as they are without the Galena oils or some other oils equally good?—A. I don't know where you could get an oil equally as good as the Galena. Since I have been with the Galena Oil Com-

pany I have never run across any oil or heard of any which would give the same results that we are getting from it.

(The last question was read to the witness.)

A. No, sir.

Q. Why?—A. Because you couldn't get another oil that I know of, anywhere, equally as good as the Galena oils. You would have to show me first.

Q. Why couldn't they be run with a poorer oil?—A. A
7183 poorer oil would not stand the high temperature that fast-speed trains run at.

Q. What causes that high temperature?—A. The heating of the journal naturally makes the oil thinner and there will not be the film of oil between the bearings as readily as if it was an oil properly compounded for that particular purpose.

Q. What heats a bearing?—A. The wearing away of the oil; the temperature—the rising temperature of the high speed.

Q. Then it is the speed, is it, that makes the high temperature?—A. Yes, sir.

Q. And you say that that has a tendency to act upon the oil?—A. Yes, sir; makes it thinner.

Q. And you say that a poorer oil would not——A. Would not stand the temperature of the high speed.

Q. In what way wouldn't it stand it? I want you to tell me. I know the general statement; I can ask you that. But I want you to tell me the fact. How is it that the heat acts upon the oil?—A. It changes the gravity of the oil; it will not create this film between the bearings that we require to keep two rubbing surfaces apart.

Cross-examination by Mr. GRAVES:

Q. When did you go with the Grand Trunk Railroad in Canada?—A. I went representing the Galena Oil Company there in 1896; the fall of 1896, I think it was; along in December some time.

7184 Q. What oils were they using when you went with them?—A. A crude oil, slightly distilled over there; I don't know what kind of oils. They were got there in Canada.

Q. Did they mix them themselves?—A. No, sir; I believe they bought them from some people around there—some of those oil people.

Q. Was it crude oil stock?—A. Yes; all crude; it was not distilled. It smelt very bad. You could smell it all over the country from those Grand Trunk cars, wherever they went.

Q. It was not a regularly compounded lubricating oil?—A. No; I believe not; that is, the stuff they used on the freight and passenger cars.

Q. What did they use on the engines?—A. That was slightly compounded; I don't know what.

Q. Did they do the compounding themselves?—A. No, sir; I don't think they did. There were a lot of small refineries over there.

Q. Do you know whether or not they did?—A. Compound themselves?

Q. Yes.—A. I know they did not; that is, in Canada. They did over on the American side.

Q. You mean they did compound on the American side?—A. Yes, sir.

Q. Didn't they use that same oil in Canada?—A. No, sir; I don't think they did.

Q. You don't know about that?—A. I know pretty well
7185 they did not. I wouldn't swear to it, but I know they had no pipe line across there.

Q. And you said that after you went with the Grand Trunk in Canada, the number of hot boxes on that line was reduced 33⅓ per cent?—A. Those were the figures they had given me in the car department in Montreal, which I had sent to my people.

Q. Do you know anything about how many hot boxes they had before you went there?—A. That was shown in that statement.

Q. That was the only knowledge that you had?—A. Yes, sir.

Q. Do you know that a record was kept of them?—A. Yes, sir.

Q. You stated that you reduced the quantity of oil used on the Grand Trunk by one-half. What kind of oil did you refer to?—A. In the oils reduced?

Q. Yes.—A. Car oil that we used on the cars.

Q. Car oil?—A. Yes, sir; that is, that crude stuff that I just mentioned to you.

Q. Where did you acquire your proficiency as an expert in the lubrication of railroads?—A. Most of it with the Galena Oil Company.

Q. Since 1897, when you went with them?—A. Well, a whole lot before that, as a traveling engineer.

Q. You acquired a whole lot before that as a traveling engineer?—A. Yes, sir; but more of it since I went with the Galena.

Q. You were not with the Galena when you were a traveling
7186 engineer?—A. No, sir.

Q. You stated that you thought the improved methods in lubricating had come solely from the methods introduced by the Galena?—A. By the Galena experts; yes, sir.

Q. Could you not, as an expert, if you never had gone with the Galena, have introduced improved methods?—A. Not very well. I had received lots of instruction from them when I was traveling engineer.

Q. But you stated that most all your qualifications as an expert were acquired before you went with the Galena?

Mr. CRAWFORD. He didn't say that, Mr. Graves.

Mr. GRAVES. That is what I understood him to say.

Q. Do you mean to say that this same improvement would never have come if the Galena Oil Company had not introduced these methods—that it would not have been introduced by others?—A. I don't think it would, sir.

Q. By yourself, for instance, as an expert?—A. I shouldn't have had the opportunity of getting out in the world and seeing what the other people were doing.

Q. You had the ability?—A. In all probability.

Q. Do you, as an expert, think that the reduction in the number of hot boxes in recent years is due, to a certain extent at least, to the improvement in the rolling stock of the roads and improved management of that rolling stock?—A. With the Galena oil methods; yes, sir.

Q. But part of it is due to the improved methods of handling and improved rolling stock?—A. Well, that is a pretty broad
7187 question there.

Q. Well, you are an expert?—A. Yes, sir. I don't see a great deal of improvement in the condition of the boxes; they are just about the same now as they were; and the methods of taking care of the stuff inside the boxes is just about the same; so that it is only the question of applying the lubricants, as much as anything else, and it is handled by the men—closer inspection through the hands of the experts who go over the railroads.

Q. And the improvement in the rolling stock itself has nothing to do with it?—A. A certain amount; better and stronger construction, and such as that.

Q. You say you know no other oil as good as the Galena oil?—A. No, sir; I have had no experience with other——

Q. What experience have you had with other oils?—A. When I was running an engine I had all kinds of experience.

Q. I mean since you have been with the Galena; since 1897—the last eleven years?—A. Only what I have told you, in connection with this matter, on the Grand Trunk Railway.

Q. That is, the only other oil you have had any experience with was the crude stock used on the Grand Trunk?—A. That is all, sir.

Q. You don't know anything about the oils made by the Pure Oil Company, for instance?—A. Don't know anything about the oil of that company.

Q. Or the New York Lubricating Oil Company, for instance?—A. No, sir.

7188 Q. Or the Union Petroleum Company of Philadelphia?—A. Never heard of them before.

Q. You don't know anything about those oils?—A. No, sir.

Redirect examination by Mr. CRAWFORD:

Q. Mr. Meehan, I suppose that during the years you have been with the Galena Company you have found your ability as an expert growing with your experience, have you not?—A. Yes, sir; every year.

Q. And your experience as to oils has been on a great many different railroads?—A. Yes, sir.

Q. Do you find it an advantage in respect to your expert knowledge to work on different railroads?—A. Yes, sir.

Q. In what way?—A. In the exchange of ideas, and meeting all our men once a year—the annual meeting, and discuss the questions of lubrication generally.

Q. Do you yourself get different experiences on different roads?—A. Yes, sir; different places.

Q. And do you consider that the total experience that you get in that way would be more than you would get on a single railroad?—A. Yes, sir; absolutely more.

Q. As to these Grand Trunk hot boxes which appeared from the statement which you say you saw, what do you recollect personally on the subject, as to the decrease of them?—A. I know that during the first six months that I was there—well, say three months—that
7189 they had a great many in different parts. You could tell that by looking in the scrap boxes where the bearings were taken out and thrown in; you would see a great many stations. Before I left there the number was diminished a great many; how many I couldn't say, but there was a great reduction, to my personal observation. The scrap places for brasses was the place to look for those.

7190 P. H. STACK, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination, by Mr. CRAWFORD:

Q. Mr. Stack, where do you live?—A. St. Paul.

Q. What is your business?—A. Mechanical expert, Galena Oil Company.

Q. How long have you been with the Galena Oil Company?—A. October, 1901.

Q. You were a railroad man before that, I believe?—A. Yes, sir.

Q. State what your experience as a railroad man was, from the beginning.—A. About 1882 to 1887, I was working in the shop, and locomotive fireman on the Lake Shore & Michigan Southern Railway. From 1887 to 1888, locomotive fireman and engine dispatcher on the Union Pacific. In 1888, roundhouse foreman on the Union Pacific. In 1889, travelling fireman and fuel inspector on the Union Pacific. In 1900 and part of 1901, locomotive engineer on the Union Pacific. In 1901 general locomotive inspector and general air-brake inspector. From 1901 up to date, mechanical expert with the Galena Oil Company.

Q. How long were you with the Union Pacific Railway?—A. About fourteen years.

Q. When did you first become familiar with the Galena
7191 oils?—A. In 1882 or 1883, on the Lake Shore & Michigan Southern.

Q. That was when you began the railroad business, was it?—A. As a locomotive fireman; yes.

Q. Have you had experience with any other oils than with those; I mean, practically, on railroads?—A. Yes, sir.

Q. Where?—A. Well, we had experience with what is called "Champion oil," on the Union Pacific.

Q. When was that?—A. I think about 1897. If you want the exact date, I can get it. About the time that Mr. Burt went to the Union Pacific as president. That was about 1897.

Q. What sort of oil was this Champion oil?—A. It was a car oil.

Q. On what class of equipment was it used on the Union Pacific?—A. It was used on freight cars. We made a test of it on freight cars.

Q. To what extent was it used?—A. Not to a very large extent, for the reason that we burned off quite a number of journals with it.

Q. How long was it used?—A. During this test it probably lasted six months; different parts of the road.

Q. On how many cars, do you know?—A. I couldn't tell. We found that it was a very poor lubricating oil.

Q. At that time what was your position?—A. General locomotive inspector.

Q. Did you have to do with the subject of lubrication on the Union Pacific?—A. Yes, sir.

7192 Q. And did you have to do with this test that you speak of?—A. In a way, yes. I was instructed by the superintendent of motive power to look out for the test on my travels up and down the road.

Q. And you had more or less personal knowledge about it, had you?—A. I have ridden on trains using it to see how it would work.

Q. What was the experience of the railroads with this Champion oil as compared with Galena oil?—A. There was no comparison at all. It was not a safe oil to use. The Champion oil was an unsafe oil to use for railroad use—that is, for lubricating cars.

Q. In what way?—A. It was an oil that would not burn; for that reason it was an unsafe oil to us. An oil that won't burn is not a safe oil to use in train service.

Q. Won't you just explain why? Remember we are all laymen here.—A. An oil that won't burn—for example, we are on a fast passenger train, and that train is lubricated with an oil that won't burn. Now, we have no indications there to show that there is a hot journal on that train. There is no smoke from the box. For that reason the journals would get hot, which they did do on that road in a number of cases—got so hot that they burnt off and caused accidents. That is one reason the oil is not a safe oil to use. Now, in the winter time the oil would freeze in the boxes. If a train would stand on a siding any length of time in cold weather, we couldn't move it; the

7193 journals would be frozen to the bearings. But the principal danger in using that oil was that it would not indicate the danger point when you had a hot bearing.

Q. Well, after that oil had been tested, what decision was arrived at?—A. They wouldn't use any more of it.

Q. What did they do? Go back to the Galena?—A. Yes. This was only a test of three carloads of it, if I remember rightly.

Q. On what railroad have you been expert for the Galena since 1901?—A. The Great Northern; Minneapolis, St. Paul & Sault Ste. Marie; Oregon Short Line; Oregon Railroad & Navigation; Duluth,

Missabe & Northern; Duluth & Iron Range; Wisconsin & Michigan; Butte, Anaconda & Pacific, and Wisconsin & Northern.

Q. Were you the first Galena expert on any of those roads?—A. No.

Q. Then you found the Galena oils in use on each of them, did you, when you went there?—A. Yes, sir.

Q. What has been your observation in regard to the reduction in the total number of hot boxes occurring now and occurring, say, fifteen years ago?—A. Well, there is no comparison to be made in, say, twenty years. If I remember right, we made 10,000 miles to the hot box in freight service on the Union Pacific, and thought we were getting out of it in very good shape. Now, as I understand it, we are getting 100,000 miles per hot box—along in that neighborhood.

Q. On what class of equipment?—A. Freight service. This I got from a conversation with the general car foreman.

Q. You don't know that of your own knowledge?—A. No. I haven't been over there since 1901.

7194 Q. Eliminate anything anybody else has told you, and confining yourself to your own observation and experience, what have you to say about the change in the number of hot boxes now as compared with fifteen years ago?—A. There is no comparison at all, to my mind.

Q. What do you mean by that?—A. There are so few hot boxes now as compared with fifteen or twenty years ago that I don't know as I could make a comparison.

Q. Was there a Galena expert assigned to the Union Pacific road when you were connected with it?—A. Yes, sir.

Q. Did you come in contact with him?—A. My instructions were to work with him and cooperate with him in every way.

Q. Your instructions when you were what?—A. General locomotive inspector.

Q. What authority was given to him at that time on the Union Pacific road?—A. He had authority to go over the line and notice our methods of handling the oil and applying it. He would then take the matter up with the official in that district, and the oil officials had instructions to cooperate with him and adopt any of his suggestions.

Q. Did he ever talk with the men?—A. Yes, sir.

Q. And make suggestions to them?—A. Always.

Q. Have authority to give them instructions if he didn't think they were doing right?—A. Yes, sir. My instructions from my superior officers—superintendent of motive power—to see that his instructions were carried out.

Q. What result, if any, did you find followed from his supervision on the Union Pacific road?—A. I found this, that

7195 when the Galena expert was away for any length of time our cost would invariably increase. And in a number of cases I asked the superintendent of motive power to locate the Galena expert and get him back to help us out—to reduce the cost. In fact, we always wanted to see him around to help us out.

Q. To what do you attribute, principally, the reduction in the number of hot boxes on American railroads?—A. To the good quality of lubricating oils and the adopting of methods as recommended by the Galena Oil Company—expert department.

Q. Since you have yourself become an expert, what has been your experience in regard to the treatment you have received from the management of railroads?—A. The very best. I have no complaints to make at all in that respect.

Q. Now, be a little specific. What authority do they give you?—A. Practically full authority in the matter of instructing their men, and the men are instructed to follow out my suggestions in all cases.

Q. What do you do after you get that authority?—A. I go out over the line, stopping at the different terminals, meet the packers, as we call them, in the roundhouses, that handle the oils and pack the engines; go out in the freight yards and work with the inspectors in the yard, instructing them in the best methods, the best way to get good results—the most economical results.

Q. Are you ever called upon to advise on the question of lubrication?—A. Yes, sir; quite often.

Q. By whom?—A. The superintendent of motive power, the
7196 general master mechanics, the different master mechanics—occasionally a general manager.

Q. Are you ever consulted in regard to other difficulties than those of pure lubrication?—A. Yes, sir; mechanical defects which lead to hot journals or hot bearings.

Q. Do you ever have to advise in the matter of new equipment?—A. No; I couldn't say that I have. They occasionally ask what I think is the best oil box, that is all.

Q. One of the roads with which you are connected is the Great Northern & Superior, isn't it?—A. St. Paul is their headquarters.

Q. What is the title of the road?—A. The Great Northern Railway.

Q. There is a division of that called the Great Northern Superior division, isn't there?—A. Well, there is a Superior division, yes; that is from St. Paul to Duluth.

Q. What has been your experience on that road, in the matter of hot boxes?—A. On that division, when navigation opens, they handle a great deal of ore from the iron mines to the Lakes, and that service is very particular service, as the trains are pretty numerous on that division and a delay for a hot box to one of those trains, means delaying quite a number of other trains back of it.

Q. What kind of cars are they running on that division of the road?—A. Steel ore cars and wooden ore cars—20,000 capacity cars.

Last June the superintendent of that division requested me to
7197 come to his office. He wanted to see me in regard to hot boxes on that division, especially on the ore cars—the ore equipment. So I called over to see him, and he said he was having altogether too many hot boxes on the ore cars. I told him if he was making less than 100,000 miles to a hot box that I would agree with him. I asked

him to check up from the conductors' reports of hot bearings, to see how many miles were made in the month of June per hot box; and on this report I showed they made 183,000 miles per hot bearing on ore cars. And I told him I thought we were doing better than that. He then asked me to go out on the line with him. We went out a few days after. We remained at one point 23 hours, where the loads and empties would come through. Thirty-six or thirty-eight thousand oil boxes passed that station in 23 hours, and there were only two hot boxes in the thirty-six or thirty-eight thousand. So he agreed with me then that he was not having any trouble with hot boxes.

Cross-examination by Mr. GRAVES:

Q. You say you were fuel inspector on the Union Pacific?—A. That was part of my duties; yes, sir.

Q. What are the duties of a fuel inspector?—A. To see that we got the proper grade of fuel from the different coal companies we were buying it from; occasionally made an inspection trip to these loading points; and did the testing of different coals before they would try to use it—locomotive tests.

7198 Q. Would that have anything to do with the manner of using the coal?—A. Yes; one of my duties was to instruct firemen in the proper methods of firing locomotives.

Q. Is that a customary position on the large railroads—fuel inspector?—A. I believe so. Some roads have fuel inspectors, but their duties are different from what mine were.

Q. It is customary, is it not, to have fuel inspectors on railroads, to overlook the manner of using the coal?—A. My duties—I don't know of others—were to see that the firemen handled the coal properly, and if they did not my duty was to show them how to do so; that was one of them.

Q. With a view to economy in its use?—A. In fuel; yes, sir.

Q. Do you, as a practical railroad man, know of any reason why a railroad could not have an oil inspector to do the same thing in regard to the use of its oil?—A. Why, they could have one; sure.

Q. You would be competent to fill such a position yourself, wouldn't you?—A. Well, I don't think I would have been when I went to the Galena Oil Company. I believe I would now.

Q. You said you made a trial or test on the Union Pacific, of Champion oil, did you not?—A. Yes, sir.

Q. Who made the Champion oil, do you know?—A. No; I couldn't say. It came from Chicago; that is all I know about it.

Q. Do you know anything about its composition? What was it?—A. All I know is what the Union Pacific chemist told me—that it was about 45 per cent water.

7199 Q. What was the other 55 per cent, do you know?—A. I couldn't say. That is all I wanted to know. We didn't want an oil that would freeze in the winter time, or that wouldn't burn; we wanted an oil that would burn.

Q. You said you had knowledge of this test that was made of Champion oil, in a way. How much knowledge did you have of it?—A. Personal knowledge.

Q. What did you do to get this knowledge?—A. Rode the train; saw that the oil was put in the boxes, and then rode on——

Q. Were you there for that purpose?—A. Yes, sir; by instructions from the superintendent of motive power.

Q. You said one of the chief objections was that it wouldn't burn?—A. Yes, sir; very badly.

Q. Naturally it wouldn't if it was 45 per cent water.—A. Yes.

Q. When was this Champion oil used there?—A. I couldn't give the exact date; it was in 1896 or 1897, along in there.

Q. What oil had been generally in use on the Union Pacific at the time that this test was made with the Champion oil?—A. Galena oils.

Q. How long before that had it been in use?—A. Well, they were there when I went to the road in 1887.

Q. In 1887 they were using Galena oil?—A. Yes, sir.

Q. Then this great reduction in hot boxes for the last fifteen years, on that road at least, was during the use of the Galena oil, wasn't it?—A. Yes, sir.

Q. 15 years ago, when the average mileage for hot boxes was 10,000 on that road the oil used was Galena oil?—A. Well, I don't know as to that.

7200 Q. It is twenty-one years since 1887.—A. Well, as I understand it, there were Galena oils but, you understand, I don't believe we had a Galena expert on the road in 1887. If we did, I didn't know it.

Q. But you had Galena oil, didn't you?—A. We had Galena oil, yes, sir.

Q. Do you know whether you had a Galena expert?—A. I couldn't say.

Q. Do you know anything about that?—A. I couldn't say. The first expert I met there was in 1889.

Q. They had an expert in 1889, you say?—A. Yes.

Q. And have had one continuously since?—A. Up to 1901, yes.

Q. Then, fifteen years ago they did have an expert?—A. I don't know how long it was; since 1889.

Q. Well, you can calculate that.—A. I believe I said to the gentleman here twenty years ago I was speaking of; fifteen, twenty, or more.

Q. 1889 was only nineteen years ago.—A. Yes.

Q. What was that road that used so many steel ore cars?—A. The Great Northern Railway.

Q. Do you know how long they had been using Galena oil?—A. They were using it when I went to the road; how long before that I don't know.

Q. When was that?—A. 1901.

Q. And what was the mileage that they made to a hot box
7201 over that piece of road you were speaking of?—A. Taking it from the superintendent's records, it showed 183,000 miles per hot box for ore cars.

Q. Do you know anything about the mileage they made per hot box before they used Galena oil?—A. No; I don't.

Q. You said that you were also general locomotive inspector on the Union Pacific from 1891 to 1901, didn't you?—A. Yes, sir.

Q. What are the duties of the general locomotive inspector?—A. I had charge of all locomotives in service, all enginemen.

Q. Had charge of them?—A. Yes, sir; in a way.

Q. What way?—A. My duties were to see that the engines were in condition to do their work, and, if there was any trouble, report it, and in case of trouble with this one engine I was sent to that point to investigate, to see whether it was in the engine or the men.

Q. Would that include the gumming of the cylinders?—A. It included looking after lubrication, yes, sir.

Q. And the proper general care of the locomotive as a machine?—A. Yes, sir.

Q. At the same time that you had general charge of those locomotives, did you have charge of the lubrication of the machine?—A. Yes, sir.

Q. You named eight or nine roads on which you have been expert for the Galena. How did you travel over those roads—on passes?—A. Yes, sir.

7202 Q. In every instance?—A. Yes, sir.

Q. You still do that?—A. Yes, sir.

Q. What roads are you expert for the Galena on now, at the present time?—A. All but the Oregon Short Line and the Oregon Railroad & Navigation.

Q. All that you have named?—A. Yes, sir.

Q. Do you receive from these railroads any compensation for your services as expert?—A. No, sir.

Q. That comes from the Galena?—A. The Galena Oil Company.

Q. Do you receive any orders or instructions from these railroads as to your work and duties?—A. Why, they very often send for me and ask me to go out on the line and help them out.

Q. Is that in the nature of a request or an order?—A. In the nature of a request always.

Re-direct examination by Mr. CRAWFORD:

Q. Many of the services which you perform on the railroad are performed on the direct request of railroad officials, aren't they?—A. Yes, sir.

Q. Much of the traveling that you do is performed in carrying out their request, is it not?—A. Oh, in every case, yes, sir.

Q. That is largely the fact, isn't it—traveling? (No answer.)

Q. Now, these passes that you use, they are confined, are they not, to the roads of which you have charge?—A. And not to be
7203 used except when in service of the railroad company. That is the only time I use them. Those are my instructions.

Q. Much has been said here to-day about the reduction in the number of hot-boxes during twenty years or more. I suppose that improvement has been gradual, hasn't it?—A. Oh, yes; gradual right along.

Q. And all these improvements in lubrication have been gradual?—A. Gradual, yes, sir.

Q. You learn more about your business every year?—A. I learn something new every day when I am out along the line working.

Q. I mean you and the other Galena experts are working along towards greater knowledge all the time, are you not?—A. Yes, sir.

Q. And you are putting new ideas into operation?—A. Just as soon as we get a new idea we always take it up with the railroad people, talk it over with them.

Q. Since you have been employed by the Galena Company do you consider that you have learned anything yourself?—A. Certainly do; yes, sir.

Q. Much?—A. A great deal in regard to lubrication.

Q. You have been on how many different roads as expert in that time?—A. Well, the number of roads I mentioned.

Q. About nine or ten?—A. Ten roads, I think, yes, sir.

Q. Has your experience on all those ten roads been the same? I mean to say, have you met only the same problems and difficulties on each of the ten roads, or are they different?—
7204 A. Oh, they differ somewhat.

Q. Then, you have acquired a certain amount of experience on each road, have you not?—A. Yes.

Q. And you now operate with the combined experience of the nine or ten roads?—A. Yes, sir. At our annual meetings at Franklin I gain a great deal of experience; that is, I get information there that helps me out in my work during the following year.

Q. Information that you receive from your brother experts?—A. At our annual meetings, yes, sir.

Q. Do you think a man who was put in charge of lubrication on a single road, confining himself to that, would develop into as capable an expert as those who now serve the Galena-Signal Oil Company?—A. No, sir.

Q. Why not?—A. Because he doesn't get the varied experience that he would get traveling around on different roads and meeting men from all over the United States, that is, Galena experts from all over the United States.

Q. When you said that the Union Pacific Railroad might have employed an oil inspector, what did you mean?—A. I meant that they could put an oil inspector on the pay roll of they wished to, but I question whether they would get the results from him.

Q. What do you think?—A. I don't think they would; that is, I mean as good results as the experts of the Galena Oil Company would give them.

Q. You mean a man trained up on their own road?—A. Yes,
7205 sir. I know that from my own personal experience.

By Mr. GRAVES:

Q. You said you used your passes only in the service of the railroad?—A. Yes, sir.

Q. That is, the service rendered as expert of the Galena-Signal Oil Company and in its employ, is it not?—A. Well, I am in the employ of the Galena Oil Company; yes, sir.

By Mr. CRAWFORD:

Q. You include the large amount of travel that you do on the direct request of the railroad officials?—A. My travels are all due to the requests of the officials of the different lines.

Q. Just explain that a little. How are these requests given to you, and for what purpose?—A. To reduce the cost of lubrication, to reduce the number of hot boxes; that is the purpose of issuing the request.

Q. Are you called upon to go to different places?—A. Yes, sir.

Q. For what purposes?—A. To locate the causes of a hot bearing at that point. In some cases the mechanical men on that division will want to locate the cause. In that case the railroad officials or the superintendent of motive power will call upon the Galena expert to go to that point to see what he can find out to remedy the trouble.

Q. In other words, you are called upon to investigate lubricating difficulties, are you not?—A. Yes, sir.

7206 Q. And in doing so you travel here and there over the line at the direct request of the railroad officials?—A. In every case; yes, sir.

By Mr. GRAVES:

Q. What proportion of your work as an expert does this traveling constitute—that is, this traveling done at the request of the officials?—A. I don't understand the question.

Q. What proportion of your work does it constitute? Are you engaged on traveling at the request of the railroad officials a great deal or——A. Why, about all the traveling is done at the request of the railroad officials.

Q. How much of your work consists in traveling?—A. I don't understand that question.

Q. I mean how much do you travel?—A. I am traveling all the time, practically; get home occasionally.

Q. Are you traveling on this particular business all the time at the request of the railroads, to look into matters of lubrication?—A. Yes, sir.

Q. How many roads are you expert on now?—A. About eight [illegible] I think.

Q. Do you ever make any inspection trips aside from these trips made at the request of the officials?—A. No, sir.

(The hearing was here adjourned until the morning of Tuesday, June 2, 1908, at 10.30 o'clock.)

7207 ROOM 722, CUSTOM-HOUSE, NEW YORK CITY,
Tuesday, June 2, 1908—10.30 a. m.

The hearing was resumed before the special examiner, Hon. Franklin Ferriss, at the above time and place.

Present: On behalf of the petitioner, Mr. Frank B. Kellogg, Mr. J. Harwood Graves; on behalf of the defendants, Mr. Moritz Rosenthal, Mr. Frank L. Crawford, Mr. W. Cleveland Runyon.

ROSWELL MILLER, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. ROSENTHAL:

Q. What is your full name, please?—A. Roswell Miller.

Q. Where do you live?—A. New York.

Q. For how many years have you lived here?—A. I have lived here seven years, I think.

Q. Your home before coming to New York was in Chicago?—A. In Chicago.

Q. What is your occupation?—A. Railroads.

Q. You are chairman of the executive board——A. Chairman of the board of directors.

Q. Of the board of directors of the Chicago, Milwaukee & St. Paul Railway?—A. Yes.

7208 Q. You were at one time president of that road?—A. Yes.

Q. During what years?—A. I can't remember.

Q. Approximately?—A. I think I have a little memorandum. I never can remember those dates. [Referring to memorandum.] I was president from April 25, 1888, to June, 1900; president and general manager; and I was president alone from June, 1890, to 1895.

Q. Preceding the time that you were president, in 1888, what was your relation to the road?—A. I was first on the road in April, 1883, as assistant to the general manager, to March, 1884. I was assistant general manager from March, 1884, to April, 1885. I was general manager from April, 1885, to April, 1888.

Q. And I presume you had had railroad experience before you came with the St. Paul?—A. Yes, sir.

Q. What other roads?—A. I was on the Chicago & Western Indiana when I went to the St. Paul, and before that I was on the Cairo & Vincennes.

Q. Railroading has been your occupation, in one capacity or another, practically all of your business life?—A. All except about four years.

Q. Do you know the Galena-Signal Oil Company?—A. Yes, sir.

Q. Did you have anything to do with the making of the original contract that the Galena Company made with the St. Paul for the lubrication of the St. Paul road?—A. Yes, sir.

Q. What did you have to do with that?—A. I had general
7209 charge, in connection with the purchasing agent.

Q. Just what do you mean by that? You say you had general charge. Did you give the matter of the making of the contract your personal attention?—A. I did.

Q. How had the St. Paul road theretofore been lubricated?—A. By buying the oil where they could buy it the cheapest.

Q. Do you remember in a general way what that first Galena contract was, so far as cost was concerned?—A. I remember in a general way that it was a contract guaranteeing the St. Paul Company that they should lubricate their engines and cars at a cost less than they had lubricated for in the previous year.

Q. Ten per cent less, was it?—A. I don't remember how much less it was. It was less.

Q. Do you remember whether the Galena Company succeeded in lubricating the road for less than what it had cost the St. Paul road theretofore?—A. They did not.

Q. So far as the St. Paul road itself was concerned?—A. They did not. The first year they did not.

Q. I think perhaps you don't understand my question. The ordinary Galena contract is a contract whereby the Galena agrees to lubricate for 90 per cent of the previous cost. The St. Paul road, I suppose, had a record of its previous cost?—A. Yes, sir.

Q. And the Galena guaranty, if it was the ordinary guaranty, was a guaranty that it should lubricate for 90 per cent of that
7210 previous cost. Have you any recollection as to whether or not that was one of the features of the Galena contract?—A. That was the principal feature.

Q. Then, as a matter of fact, it must have cost the St. Paul road 10 per cent less for its lubrication the first year, under the Galena contract, than it had theretofore?—A. Yes; it did cost the St. Paul road 10 per cent less.

Q. And what you mean to say was that it cost the Galena-Signal Company more?—A. Yes, exactly.

Q. Namely, that it lost money on the contract?—A. Exactly.

Q. Have you any recollection of about how much money the Galena-Signal Company paid back to the St. Paul that first year?—A. My recollection is that they paid us $60,000. It was a very large sum.

Q. Have you any recollection as to whether or not the amounts of those refunds gradually diminished?—A. They did. They diminished after five or six years more than they did before.

Q. With whom did you negotiate that first contract?—A. Charles Miller.

Q. President of the Galena-Signal Company?—A. Yes.

Q. Did you then know of the existence of any relationship between the Galena-Signal Company and the Standard Oil Com-

pany?—A. I had not the slightest knowledge until about five or six years ago.

Q. Then there wasn't anything whatever in that relationship between the Galena and the Standard that in the slightest
7211 degree influenced you in the making of that contract?—A. Not the slightest.

Q. What was your theory in making that contract?—A. We knew what the lubrication had cost us per thousand miles before, and we thought that if we could save ten per cent on that cost that was a good thing to do, and we made the contract.

Q. What have you to say as to the quality of the oil and the character of the lubrication of the Galena-Signal Company after they began lubricating the St. Paul road?—A. During the time when I had to do with it, the quality of the oil was very good; there was no complaint; and the cost of lubrication gradually went down.

Q. How important is the matter of successful lubrication, to a railway system, Mr. Miller?—A. I regard it as of the first importance.

Q. In what way?—A. In reducting the cost of lubrication, in the matter of dollars and cents in the cost of lubrication, but the results to the train service, the results to the car service, and the results to the engine service. It is of the first importance.

Q. Do you remember whether the Galena introduced any experts upon your system?—A. They did, upon the closing of the contract, immediately.

Q. Do you remember what those experts did?—A. They traveled over the road, constantly, instructing our men as to lubrication.
7212 Q. And what effect did that have?—A. It had an immediate effect.

Q. In what way?—A. In reducing the cost of lubrication, in the use of oil, and the method of using it.

Q. Is there any relation, in your judgment, between the matter of lubrication and the use of fuel?—A. Yes.

Q. Does successful lubrication mean a diminution in the quantity of fuel required?—A. It does.

Q. During all the years that the Galena-Signal Company has been lubricating the St. Paul system have you ever been approached by any officer or director of the Standard Oil Company who has talked with you concerning the matter of lubrication?—A. No, sir; no officer or director of the Standard Oil Company has ever said a word to me about the Galena lubrication—Galena contract.

Q. Has there ever been anything said to you or in your presence that indicated the slightest effort upon the part of the Standard Oil Company to influence the St. Paul road to give to the Galena Company its lubrication, in return for which the Standard Oil Company was to ship freight over the St. Paul?—A. Never.

Q. Have those matters, or anything akin to those matters, ever been discussed by you with Mr. Rogers, Mr. William Rockefeller,

Mr. Percy Rockefeller, or any other officer or director of the Standard Oil Company?—A. Never.

Q. Has it ever been a matter of discussion in any board meeting?—A. Never.

7213 Q. Then, as I understand you, the matter of the contract between the Galena-Signal Company and the St. Paul road, in its last analysis, simply means that the St. Paul road has made a contract for lubrication with the Galena-Signal on the merits of the contract and the lubrication itself?—A. Purely.

Cross-examination by Mr. KELLOGG:

Q. Where do you have the oil for your system delivered?—A. At Milwaukee, I think.

Q. That is the mechanical headquarters?—A. Yes. Probably some of it is delivered at Chicago.

Q. That was so delivered when you were active in the management?—A. Yes.

Q. In what form? Delivered in barrels, or tanks, or tank cars?—A. I don't know about that. I think some of it was delivered in tank cars; car oil, for instance, and passenger-car oil; and engine oil in barrels. I think so; I don't know.

Q. You know that some roads paid freight in addition to the Standard price of 48 cents a gallon for valve oil, 28 cents for engine oil, and 18 cents for car oil, don't you?—A. No.

Q. They paid freight in addition to that?—A. Freight on their own road?

Q. No; not on their own road, but freight on delivery to their road.—A. I don't know that.

Q. Your company never paid any freight?—A. I don't know that.

7214 Q. Your standard price was 48, 28, and 18 cents, wasn't it?—A. Yes; I think it was.

Q. It appears that those lines where the oil could not be delivered at Chicago or within the territory east of Chicago added whatever the freight was necessary to deliver it to southwestern lines and western lines that received their oil at Chicago. You have no recollection of your doing that?—A. No, sir.

Q. Then, that was your standard price, 48, 28, and 18 cents?—A. Yes.

Q. When you were general manager and in close touch with the road, don't you remember how the oil was delivered to you?—A. Whether delivered in tanks or in barrels?

Q. Yes.—A. No; I do not.

Q. You don't remember anything about it?—A. No. I paid no attention to that detail.

Q. Well, you say you think some of the car oil was delivered in tank cars?—A. I think, possibly.

Q. What tank cars? Did you own any tank cars?—A. No.

Q. What car lines would deliver it? Where did you get the tank cars?—A. Possibly the Union Tank Line.

Q. That is a Standard Oil concern?—A. Yes.

Q. You always knew that to be a Standard Oil concern, didn't you?—A. The Union Tank Line?

Q. Yes.—A. Yes.

Q. And if they were delivering your lubricating oil in Union Tank Line cars, you would have some reason to think they
7215 had some connection with the Standard Oil Company, wouldn't you?—A. Not at all.

Q. Not at all?—A. No; because they might have bought oil from the Standard Oil Company, just as other people do.

Q. You had reason to believe it was a Standard Oil concern that sold the oil?—A. No; I didn't.

Q. You didn't?—A. Oh, never.

Q. You never heard in your life, until within the last five years, that the Galena-Signal Oil Company was in any way connected with the Standard Oil Company?—A. No.

Q. Where was Mr. Miller's office—the president?—A. At Franklin, Pennsylvania.

Q. Didn't he also have an office at 26 Broadway?—A. I don't know that.

Q. Never knew him to be there?—A. Never, until within five years.

Q. Do you remember the time the Standard Oil Company was fired out of Ohio, in the great litigation of 1892?—A. No; I don't.

Mr. ROSENTHAL. I object.

Q. You have no recollection?—A. No.

Q. The newspapers were full of it, weren't they?

Mr. ROSENTHAL. It never was fired out.

A. Very likely; the newspapers are full of a great many things that I don't remember.

Q. And the Galena-Signal Company and the Galena Oil Company were parties to that contract, were they not?

7216 Mr. ROSENTHAL. Oh, no.

A. What contract?

Q. To the contract in violation of the laws of Ohio?—A. I don't know that.

Q. The trust agreement—— A. I don't know that.

Q. The great Standard Oil trust agreement; you never heard of that agreement?—A. I never heard of it.

Q. Never heard of the Standard Oil Trust?—A. Yes; I have heard of the Standard Oil Trust, frequently.

Q. Did you hear of it in those days, Mr. Miller?—A. Yes.

Q. There was a great deal said about it in those days, wasn't there?—A. Oh, yes; from time immemorial.

Q. And yet the Galena-Signal Oil Company and the Galena Oil Company you never knew to have any connection with the Standard Oil Company?—A. I never did.

Q. In any way or shape?—A. In any way or shape.

Q. Who are the Standard Oil directors in the Milwaukee road?—A. William Rockefeller——

Q. Has been for many years, hasn't he?—A. Has been many years; before I went on the road. H. H. Rogers——

Q. He has been for many years, hasn't he?—A. No; I think about six years.

Q. Mr. William Rockefeller was a director before you ever went on the Milwaukee road?—A. Yes.

Q. And has been a director ever since?—A. Yes.

7217 Q. Well, who else?—A. Charles W. Harkness.

Q. How long has he been?—A. About five or six years. And Percy Rockefeller has been a director about a year.

Q. What other Standard Oil directors did you ever have on your board?—A. None.

Mr. ROSENTHAL. Percy Rockefeller, it might be noted, is neither an officer nor a director of the Standard Oil Company.

Mr. KELLOGG. Assistant treasurer, I think.

Mr. ROSENTHAL. Oh, no.

WITNESS. I think that is right; I think he is not an officer in any office in the Standard Oil Company.

Q. Who is Percy Rockefeller?—A. He is a son of William.

Q. Previous to that time you never had any Standard Oil directors except William Rockefeller?—A. I don't think we did.

Q. Mr. Miller, you first became acquainted with the subject of lubrication along about 1883, when you went with the Milwaukee road as assistant to the general manager?—A. Yes.

Q. Lubrication in those days was in a crude condition, comparatively, wasn't it?—A. Yes; comparatively; compared with what it is now, it was.

Q. You bought your oils and mixed them and assimilated them yourselves?—A. I think we bought our engine oil and mixed it ourselves, but I don't think we did car oil.

Q. In those days a great deal of tallow was used in the engine oil, wasn't there?—A. Yes.

7218 Q. And that was common on railroads?—A. Yes.

Q. Tallow was very expensive, wasn't it?—A. Yes, sir.

Q. It was an expensive lubricant?—A. Yes.

Q. And in time, other kinds of oil, mineral oil, such as petroleum, came to be used as a lubricant for engines?—A. Yes, sir.

Q. As the principal factor?—A. Yes, sir.

Q. And oils were improved from time to time, were they not?—A. Yes, sir.

Q. And the system of lubrication improved from time to time?—A. Yes, sir.

Q. The other branches of the railroad service have improved, too, haven't they?—A. Yes, sir.

Q. During those twenty-five years that you speak of, there have been tremendous strides in improvement of all branches of railroad service, have there not?—A. Yes, sir.

Q. And improvements instituted by the railroad men themselves?—A. Yes—not all the improvements.

Q. Oh, not all of them; but many of them?—A. Many of them; yes.

Q. As compared with twenty-five years ago, you are constantly watching the expenses in each branch of service, are you not?—A. Yes.

Q. And keeping statistics?—A. Yes.

Q. To show where the expenses can be reduced?—A. Yes.

Q. Or whether they increase or decrease; isn't that true?—A. Yes.

7219 Q. So that rates have been reduced during this time, haven't they?—A. Very much.

Q. Tremendously?—A. Yes.

Q. And the railroad company has been enabled to haul freight at very much less expense per ton per mile than 25 years ago?—A. Yes, sir.

Q. And has received a gross sum for the carriage of freight very much less than 25 years ago?—A. Received a less rate per ton per mile.

Q. Yes; and a less rate per mile.—A. Not a less "gross sum," as you said.

Q. No; I mean per ton per mile. You are quite right.—A. Yes; per ton per mile.

Q. Of course the gross earnings of the roads have largely increased.—A. Yes.

Q. And their cost has largely increased?—A. Yes.

Q. Millions have been spent in the improvement of railroads in the last 25 years, isn't that true?—A. Yes.

Q. Now, the Galena-Signal Oil Company has sold good oil and given you good service, hasn't it?—A. Very good.

Q. And you don't pretend to say that other companies could not do as well? You don't know anything about any other company, do you?—A. I know that no other company has offered to do as well.

Q. You don't know that any other company could not do as well?—A. Oh, no.

7220 Q. And you won't pretend to say to the court that if the Galena-Signal Company had not instituted many of these improved methods of lubrication the railroads would not have done it?—A. No.

Q. You think they would have done it, don't you?—A. I don't know.

Q. Well, isn't it your opinion, from the improvements made in all branches of service——A. I think it would have been very much slower; they would have eventually got there, but they would have been very much longer getting there.

Q. They have many other things to look after?—A. Yes.

Q. But the railroad men are pretty bright men in instituting savings, are they not?—A. Yes; but the Galena Oil Company was principally engaged in reducing the cost of lubrication.

Q. That was its only business?—A. That was its only business, and it had all the experts necessary.

Q. They hired railroad men for experts, didn't they?—A. I presume so.

Q. Got all their experts off the railroads?—A. I presume they did.

Q. And the railroads could have hired them themselves?—A. Yes.

Q. And when these questions of economy became necessary and the extra cost attracted the attention of the railroads they have always instituted systems of saving, haven't they?—A. Yes; if they could.

7221 Q. Yes, where they could?—A. Where they could.

Q. And you don't pretend to say they could not institute this?—A. No. Oh, no.

Q. Have you ever asked bids from any other company?—A. Not bids, during my time. There were no bids to guarantee the lubrication not to exceed a certain cost.

Q. I know, but you never sought bids from outside companies or independent companies?—A. Oh, no. But independent and outside companies were all the while running to us.

Q. They were?—A. Yes.

Q. Did you ever advertise for bids to lubricate the road?—A. Never. We don't advertise——

Q. Ever asked them to submit bids?—A. We don't advertise for any of our contracts; don't advertise for anything.

Q. In your large contracts for construction work and bridge work you advertise for bids?—A. No, never.

Q. You receive bids, don't you?—A. We receive bids, yes.

Q. Have you ever received a bid for lubricating your railroad?—A. Not on the same basis of the Galena Company.

Q. You never have?—A. During my time.

Q. During your time I am speaking of.—A. I don't know how it has been since, but during my time.

Q. Did you ever ask any company to submit a bid for lubrication?—A. No. We didn't ask the Galena Company to submit a bid.

Q. You simply made a contract with the Galena Company that has been satisfactory, and you have kept it up with them?—

7222 A. Yes.

Q. Did you ever announce to the trade the expiration of a contract with the Galena-Signal, to give them any opportunity to bid?—A. I don't think we did.

Q. You never tried with any other company to see whether you could get cheaper lubrication or not?—A. I don't know.

Q. You have no knowledge of it?—A. Personally I didn't. The purchasing agent may have done so.

Q. You made this contract, you say, yourself; the first contract?—A. Yes.

Q. In what year?—A. I think it was in 1885.

Q. You were then buying Galena oils to lubricate your railroad, weren't you?—A. Yes, somewhat, and buying some cheaper oils.

Q. But to lubricate your engines you bought Galena oil at that time, didn't you?—A. I think so.

Q. Now, the cost to the Milwaukee road for lubricating, the year previous to this contract, was the cost that you yourself paid, charging the oils at the price you bought them in the market and charging all expenses of lubrication?—A. Yes, sir.

Q. You used the Galena oil for valve oil at that time didn't you?—A. I don't know.

Q. You were buying Galena oils at that time, you say?—A. I presume we were. I can't remember.

Q. Mr. McKenna, I believe, testified that you were.—
7223 A. I presume we were. I can not remember those details so long back.

Q. Then the 90 per cent of the previous cost, or to at least a large extent, was the 90 per cent of the cost of the Galena oils, wasn't it?—A. I don't know.

Q. You don't know anything about that?—A. No.

Q. Have you any record of the cost in those early years?—A. No.

Q. This is just your recollection?—A. Yes.

Q. Do you specifically recollect that the contract was for 90 per cent of the previous cost?—A. No; I do not.

Q. You don't know whether it was or not?—A. I know it was for less than the previous cost; how much I don't know. I don't remember.

Q. Well, the Standard Oil Company or its subsidiary companies have been large shippers over your road for many years, haven't they?—A. Yes; they have.

Q. Largely in the cars of the Union Tank Line Company?—A. I presume the majority of the shipments were in the cars of the Union Tank Line.

Q. Into all the territory reached by the St. Paul system?—A. Yes, sir.

Q. And, taking into consideration other shipments, the Standard Oil Company was a large individual shipper?—A. Yes, sir.

Q. Have the Standard Oil experts who are on your line
7224 always received passes from the St. Paul road?—A. During my time the Union Tank Line officers and agents received passes. The Standard Oil Company did not.

Q. The Galena-Signal Oil's traveling men and agents received passes, didn't they?—A. Yes; during my time they did.

Q. And the president of the company, Mr. Miller?—A. I don't think he did.

Q. But their traveling men all did?—A. Their experts did.

Q. Yes; "traveling experts" I should have said.—A. Yes.

Q. A great many passes were issued to the Union Tank Line Company, weren't there?—A. About as many as to other companies similarly situated.

Q. Do you have any idea how many?—A. No; not the slightest.

Q. A large number, weren't they?—A. Not so very large, no; not so very large.

Q. Do you know what those men did in the Union Tank Line Company who received passes?—A. I presume they looked after the cars.

Q. You don't know anything about it yourself?—A. I know some of them did—looked after the cars exclusively.

Q. Now, you say the Galena Oil Company, for the first two or three years it had your contract, lost money; how do you know they did?—A. I say that the Galena Oil Company for the first two or three years had to pay us, under their guaranty, an amount of money from $60,000 down.

Q. Yes; but you don't know whether they lost money on the contract?—A. I don't.

7225 Q. You say the cost of lubrication has gone down on your road. You don't mean that the guaranty on the Milwaukee road has gone down; the guaranty per mile?—A. I think the guaranties are less than they were.

Q. They are higher to-day than they were ten years ago, aren't they?—A. I think they are less now than they were at the time of the first contract.

Q. How was it ten years ago?

Mr. ROSENTHAL. The records show.

Q. They are higher now than they were ten years ago, aren't they?—A. I don't know.

Q. You don't know?—A. No, nothing about ten years.

Q. Have you ever investigated the cost of lubricating other systems of road than yours?—A. No.

Q. Never looked into it at all?—A. No.

Q. Never inquired into the price it would cost other roads to lubricate?—A. No. That was left for other officers of the company to do.

Q. Do you know whether they did it or not?—A. I presume they have.

Q. Did they ever submit to you any figures of cost?—A. They never have.

Q. You never took up the question?—A. No.

Q. And you were willing to go on lubricating with this company without knowing at all what it cost any other company?—A. On the statement of the purchasing agent that the cost was so and so.

7226 Q. But you don't know whether he ever investigated the cost on other systems or not?—A. No.

Q. Now, in the cost of hauling the freight, in the rates per ton per mile, you frequently instituted comparisons with the costs on other roads, didn't you?—A. Yes, sir.

Q. And your auditor, or whoever your accounting officer was, frequently submitted to you costs of the various services as compared with the cost on other lines of road, didn't he?—A. No; those were made up in my office.

Q. I know, but you examined them, didn't you?—A. Yes, sir.

Q. And you compared the cost of the various services on the Milwaukee road with that on other lines of road?—A. Yes.

Q. To see whether you were doing as well as they?—A. Yes.

Q. To see whether you could improve yours or get the cost down?—A. Yes.

Q. Did you ever make such a comparison on the question of lubrication?—A. I did not.

Q. Do you know anything about the cost of lubricating other railroads?—A. I do not.

Q. Was it ever submitted to you, in any form or shape?—A. I don't remember.

Redirect examination by Mr. ROSENTHAL:

Q. Was it the custom, during your time, to furnish to the employees of fast-freight lines operating their own cars over the line of the Milwaukee & St. Paul passes?—A. Yes, sir.

7227 Q. That was the universal custom, was it not?—A. Yes.

Q. It was not unique so far as the Union Tank Line was concerned?—A. No; we furnished the proprietors of the street car line, for instance, passes. That was a line of stable or stock cars.

Q. Prior to 1906 you furnished a great many passes rather indiscriminately, anyway, did you not?—A. Yes, sir.

7228 F. H. FECHTIG, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. ROSENTHAL:

Q. What is your full name?—A. F. H. Fechtig.

Q. Where do you live?—A. Wilmington, North Carolina.

Q. What is your occupation?—A. Purchasing agent of the Atlantic Coast Line Railroad.

Q. How long have you held that position?—A. Fourteen years on the first of July.

Q. In what general direction does the Atlantic Coast Line extend?—A. It runs from Richmond, Virginia, south through North Carolina, South Carolina, Georgia, Florida, and part of Alabama.

Q. What is its mileage?—A. About 4,300 miles.

Q. Do you know a man by the name of Philip Harrison, who is connected with the New York Lubricating Company?—A. I think I met him on one or two occasions.

Q. Do you remember his endeavoring to secure a contract for the lubrication of the Atlantic Coast Line road from you in the month of December, 1903, or thereabouts?—A. Yes, sir.

Q. He did try to secure a contract for the lubrication of the Atlantic Coast Line for the next succeeding year, or the next succeeding two years, did he not?—A. Two years; yes, sir; from January 1, 1904.

7229 Q. And he did not succeed in getting that contract?—A. He did not.

Q. Who got it?—A. The Galena-Signal Oil Company.

Q. Who had theretofore had the contract?—A. The Galena-Signal Oil Company, from November 1, 1895.

Q. After the Galena-Signal Oil Company had secured the contract for the year 1904 did you have any talk of any kind with Mr. Harrison as to why the Galena had been given the contract?—A. I don't remember that I did. I don't believe I ever saw him but the one time; that was in November, I think, or October.

Q. After the Galena Company had gotten the contract for 1904, at or about that time, did you say to him that you regretted that the contract had not been awarded to the lowest bidder, that you had believed all along and did believe that your road was constantly getting the worst of it from the Galena-Signal Oil Company, but that the matter had been taken out of your hands and it had been decided to renew your contract with the Galena-Signal Oil Company?—A. I did not.

Q. Did you say that, or anything like that, or anything that could possibly be construed as meaning that?—A. I did not. I don't think that I have seen him since the letting of the contract; as to that, however, I am not clear. Since that time I have had probably 6,000 men visit me, and I can't remember all that visit me.

Q. Were you at all intimately acquainted with Mr. Harrison?—A. I was not.

Q. What was your acquaintance with Mr. Harrison, so far as
7230 any negotiations concerning this contract for lubrication was concerned?—A. Merely his coming into my office and giving me the figures.

Q. He was a complete and total stranger to you, prior to that time?—A. Yes, sir; prior to that time and since that time.

Q. You never before then had any business relations with him, and never have had since?—A. Not in the slightest degree.

Q. He was a mere salesman representing the New York Lubricating Company, calling upon you as purchasing agent for this system, for the purpose of endeavoring to make this contract?—A. He was.

Cross-examination by Mr. KELLOGG:

Q. You have been purchasing agent of the Atlantic Coast Line for how many years?—A. Fourteen years the first of next July.

Q. Do you sign the contracts with the Galena-Signal Oil Company?—A. I have for about ten years.

Q. Previous to that time did you do so?—A. No, sir; Mr. Kenly did, the third vice-president; at that time he was the general manager.

Q. Do you consult with the general manager or vice-president, or some other official, before signing these contracts?—A. Yes, sir; I make the recommendations; I made the recommendation to him in 1895.

Q. Does the Atlantic Coast Line include the Charleston & Western Carolina Railway?—A. Some of the officials of the
7231 Atlantic Coast Line are connected with that company.

Q. And you are also purchasing agent for that company?—A. I am.

Q. How long have you been?—A. I think about ten years, on that, sir; I am not clear as to that. Ever since shortly after they bought the line; I forget when that time was.

Q. The Atlantic Coast Line runs from what points, to what points, in the South?—A. The Atlantic Coast Line runs from Richmond, Virginia, to Fort Myers, Florida; that is the most southern point. From Jesup it branches off and goes to Montgomery, Alabama. At Florence, Alabama, it branches off and goes to Columbia, South Carolina; also goes to Wadesboro, North Carolina. The longest distance between terminals, I think, is about 990 miles.

Q. Where does the Charleston & Western Carolina road go to?—A. It runs from Port Royal up to Spartanburg and Greenville, through Augusta.

Q. Is it a line substantially the same as your other southern lines?—A. No, sir; a large part of it is Piedmont section line.

Q. What do you mean by that?—A. Higher country.

Q. Heavier grades you mean?—A. Heavier grades, and not so much sand. The Coast Line proper has considerable sand throughout.

Q. The line over to Montgomery, Alabama, is that——A. Well, a couple of hundred miles of that is higher country, too, but not so high as the Charleston & Western Carolina, I think.

Q. How does the equipment on those two lines of road com-
7232 pare—the Charleston & Western Carolina and the other lines of the Atlantic Coast Line?—A. The Charleston & Western Carolina Railroad is a local road; it has no through trains.

Q. I mean its general freight equipment, freight engines, etc.—A. I expect they compare about the same.

Q. And its engines about the same size?—A. About the same size.

Q. It has no through fast passenger trains?—A. No, sir; no through fast freight trains either.

Q. And its ordinary passenger trains are about the same as the ordinary passenger trains on the other lines?—A. Yes, sir.

Q. And it runs through substantially the same country as much of the Atlantic Coast Line?—A. The upper section. There is a straight line from Augusta south; that is practically through the same kind of country that the Coast Line runs through; it is a very sandy and dusty country; hard to lubricate; but the upper country, there is not so much dust.

Q. But, as a whole, there is not much difference between the two systems?—A. There is, because fully two-thirds of the Charleston & Western Carolina Railroad is through a hilly country.

Q. And the other one-third is in a sandy country?—A. In a sandy country; yes, sir.

Q. How much of the Atlantic Coast Line road is in a hilly country or a country that is not sandy?—A. A very small part of it, sir.

7233 Q. When was this that Mr. Harrison saw you about getting the contract on the Atlantic Coast Line?—A. I think it was in October or November, 1903.

Q. You let the contract for the Charleston & Western Carolina about December 31, 1903, didn't you?—A. I think I have a memorandum on that. [Referring to memorandum.] Some time in December; yes, sir.

Q. And on the same date, or substantially the same date, you let the contract for the Atlantic Coast Line?—A. We did, sir.

Q. The guaranteed cost for the Charleston & Western Carolina per thousand miles run of engines was substantially 75½ cents per thousand miles, was it not?—A. No, sir.

Q. Wasn't it?—A. The same as the previous year. Yes, sir, that is about right.

Q. And the guaranteed cost per thousand miles of engine run on the Atlantic Coast Line was $1.82 per 1,000 miles, wasn't it?—A. (Referring to memorandum.) That is right, sir.

Q. The Atlantic Coast Line ran heavy fast passenger trains, didn't it?—A. Yes, sir.

Q. The Charleston & Western Carolina did not?—A. Yes, sir.

Q. Isn't it a fact that the reason you got a lower contract for the Charleston & Western Carolina was that you had yourself reduced the cost of running that line?—A. The Charleston & Western Carolina Railroad, being a local line, the cost was reduced very considerably by one master mechanic who had charge of the whole business.

7234 Q. And he did not reduce it under a contract with the Galena Signal Oil Company, either, did he?—A. It was under no contract whatever, sir.

Q. He had had charge of the lubricating of that road prior to that time?—A. Yes, sir.

Q. And he had reduced the cost away below the cost of the Atlantic Coast Line, hadn't he?—A. Yes, sir.

Q. And the Galena Signal Oil Company gave you a contract on his previous cost?—A. Yes, sir. And they lost money by it.

Q. Are they still losing money by it?—A. Yes, sir; considerable.

Q. Who was this man? Do you remember his name?—A. This master mechanic?

Q. Yes.—A. A man by the name of Irwin. Mr. A. W. Anderson was the superintendent of that road.

Q. Irwin had charge of the lubrication of that road up to 1903?—A. Yes, sir.

Q. Where did he get his oil?—A. I bought the oil for him, and I think we bought some of it from the Standard, there in Augusta.

Q. Who else did you buy from?—A. Some of it from Crew-Levick Company. I am not sure as to these companies.

Q. Crew-Levick Company was an independent concern?—A. Yes, sir.

Q. It was not a Standard concern?—A. No, sir.

Q. Who else?—A. I don't remember.

Q. He had charge of it, and he had reduced the cost down to the cost which the Galena Oil Company took the contract at in
7235 1903?—A. He did.

Q. They took the contract at the same cost that he had previously showed?—A. Yes, sir.

Q. You say they have lost money on it ever since?—A. They have.

Q. They have made it up on the Atlantic Coast Line, haven't they?—A. I don't know about that.

Q. Now, your freight-car guaranty on the Charleston & Western Carolina was 4½ cents?—A. Yes, sir.

Q. And on the Atlantic Coast ten cents, wasn't it?—A. Yes, sir.

Q. And your passenger car on the Charleston & Western Carolina was 10½, and on the Atlantic Coast 18?—A. That is right.

Q. That was the contract of December 31st?—A. Yes, sir.

Q. That was the first contract that they had had on the Charleston & Western Carolina?—A. Yes, sir; that was the first contract.

Q. Well, the contract which you entered into December 31, 1903, with the Atlantic Coast Line increased the engine cost from $1.75 a thousand miles to $1.82 guaranty, didn't it?—A. That is correct, sir.

Q. And the passenger car and freight car remained the same as in the previous contract?—A. Remained the same, sir.

7236 Q. Now, at whose direction did you make that contract of December 31, 1903?—A. I recommended it to Mr. Kenly, sir.

Q. You recommended it?—A. Yes, sir.

Q. And you are sure you didn't see Mr. Harrison and have any conversation with him after that time?—A. I don't think I did, sir; I don't say positively I did not.

Q. You had seen him several times before that?—A. I don't think I ever saw him more than once or twice in my life.

Q. You talked with him about the contract?—A. I did, sir.

Q. You had shown him your performance?—A. I gave him the mileage.

Q. Did you give him the cost on the Charleston & Western?—A. I don't remember that I did; possibly I did on the Charleston & Western.

Q. But you did on the Atlantic Coast Line?—A. Yes, sir.

Q. You have no recollection of having any conversation with him after that?—A. I have not, sir.

Q. But you are positive you never said anything to him about being sorry that the contract was not awarded to the lowest bidder?—A. Yes, sir.

Q. He was the lowest bidder, was he?—A. Yes, sir, he was.

Q. Did you say anything to him about getting the worst of it with the Atlantic Coast Line?—A. No, sir.

Q. You knew what the costs were on the Charleston & Western Carolina, did you not?—A. I did indeed, sir.

Q. And did you try to get the cost reduced on the Atlantic Coast Line?—A. I did, sir, and had it reduced in after years, after contracts.

Q. But you tried to get it reduced that year?—A. I did, sir. I knew they were losing money on the Charleston & Western Carolina.

Q. They didn't have the Charleston & Western Carolina Railroad?—A. In 1903?

Q. I am talking about 1903 when you had these negotiations with Mr. Harrison.—A. Oh yes, sir, they had it then; the Galena Oil Company had it then. They made it April 1, 1902, for one year.

Q. Didn't they make it December 31, 1903, the same date that you entered into the contract with the Atlantic Coast Line?—A. Yes, sir; I think so, sir.

Q. What?—A. I think that is the same date; I think they run the same.

Q. That was the first contract you had between the Galena Oil Company and the Charleston & Western Carolina?—A. I think so.

Q. Then, at the time you let the new contract with the Galena-Signal Oil Company, December 31, 1903, you also let the first contract with them for the Charleston & Western Carolina?—A. Yes, sir.

Q. That is correct, isn't it?—A. Yes, sir.

Q. Now, at that time, you knew the cost on the Charleston &
7238 Western Carolina, didn't you?—A. I have got in my note here April 1, 1902, Charleston & Western Carolina.

Q. You knew what the cost was on that line when you let the contract of December 31, 1903, did you not?—A. I did.

Q. And did you try to get a lower cost for the Atlantic Coast Line from the Galena-Signal than previous years?—A. I did, sir; but couldn't do it.

Q. And instead of getting a lower cost, they raised you?—A. Yes, sir.

Q. From $1.75 to $1.82?—A. Yes, sir. We were getting larger motive power.

Q. So were all lines of railroad?—A. Yes, sir.

Q. All over the country?—A. All over the country.

Q. Since 1903 their guaranties on the Charleston & Western Carolina Railway, on the engine mileage, have been increased?—A. Yes, sir.

Q. From 75½ cents to $1, and then in 1906 to $1.25?—A. That is correct, sir.

Q. But they are still away under the Atlantic Coast Line?—A. They are under the Atlantic Coast Line, sir.

Q. The Charleston & Western Carolina road has paid less than 50 per cent of the invoice price for its oils, hasn't it, even on those low guaranties?—A. I don't understand that exactly.

Q. The Charleston & Western Carolina road, in its final settlements——A. They have paid $1.25 per 1,000 miles of lubrica-
7239 tion, 10½ cents for passenger-car lubrication, and 5½ cents per 1,000 miles for freight lubrication.

Q. That is, since 1906?—A. Since the first of January, 1906; yes, sir.

Q. But, I say, notwithstanding that, it has got its lubrication since 1906 for about 63 per cent of the invoice cost?—A. I don't understand about the invoice cost.

Q. There has been refunded to it 33 per cent of the invoice cost?—A. Oh, yes, sir.

Q. Then it has got its lubrication for 67 per cent?—A. I haven't worked those figures out.

Q. It has had refunded to it about 33 per cent of the invoice cost, hasn't it—the Charleston & Western Carolina?—A. Whatever the contract calls for, sir; I haven't figured out that percentage.

Q. Is that your recollection? It has had refunded a large percentage, hasn't it?—A. Yes, sir.

Q. While the Atlantic Coast Line has paid 100 per cent; it had no refund whatever?—A. Yes, sir; we have had a refund.

Q. Since 1906?—A. Not since 1906.

Q. You didn't have any refund. You didn't have any refund for the year ending December 31, 1905, did you?—A. No, sir; we did not; for the simple reason that is not a contract period, sir.

Q. Isn't it?—A. No, sir.

7240 Q. On the Atlantic Coast Line?—A. No, sir. The contract runs for two years from January 1, 1904, to January 1, 1906.

Q. You have annual settlements, don't you?—A. Oh, no, sir; we have settlements at the end of the contract.

Q. According to their statement they made annual settlements with you, according to this statement in evidence.—A. No, sir.

Q. They have not?—A. No, sir. At the end of the contract period.

Q. Are you sure about that? I think you must be mistaken.—A. Possibly I may be mistaken about that, sir, but I think it is the end of the contract period. I have not brought any papers along on that subject.

Mr. ROSENTHAL. I think the witness is probably mistaken about that.

Q. The settlement sheets put in evidence by the Galena-Signal Oil Company show that you had a settlement for the year ending December 31, 1905, and that you had a settlement for the year ending December 31, 1906, and that in each of those years the Atlantic Coast Line got no refund.—A. In 1905 we were less than the guaranty.

Q. According to their statement you were not. How much less?—A. About $2,000.

Mr. CRAWFORD. This statement shows that they were less.

Q. You got no refund in the year 1905?—A. No, sir.

Q. Then, you actually paid 100 per cent of the invoice price for your oil, didn't you?—A. Yes, sir.

7241 Q. And the same is true for the year ending December 31, 1906; you got no refund?—A. That is correct, sir. About $70 under the guaranty for the year ending December 31, 1906.

Redirect examination by Mr. ROSENTHAL:

Q. What is the length of the Charleston & Western Carolina?—A. I think it is 342 miles.

Q. And the Atlantic Coast Line is between four and five thousand?—A. 4,333, I think, sir; about 4,300 miles.

Q. Is the Charleston & Western Carolina part of the Atlantic Coast Line system?—A. You might call it part of the Atlantic Coast Line system, but it is not operated by the same superintendent or the same master mechanic.

Q. But they work closely?—A. They work closely together.

Q. In a sense, at least, it is part of the same system?—A. Yes.

Q. And it is owned by the Atlantic Coast Line?—A. It is owned by the Atlantic Coast Line Company.

Q. And is there an exchange of freight?—A. Yes, sir.

Q. Freight from one line to the other?—A. Yes, sir.

Q. Do the lines touch each other at many points?—A. They do. The Atlantic Coast Line Railway Company uses 28 miles of its track getting in from Denmark to Augusta, Georgia.

Q. What do you, as a railroad man, say about the advisability of having the entire system lubricated by one company?—A. Very desirable, sir.

Q. Why?—A. So that you won't mix the oil in the boxes, one road put in a common oil and another road put a good oil in,
7242 and have the same system of packing over all.

Q. So the Galena-Signal Oil Company might, for the purpose of getting the lubrication of the Atlantic Coast Line, it being such a direct connection with the Charleston & Western Carolina, well afford to make a lower rate on the Charleston & Western Carolina in order to have uniform lubrication throughout the entire system?—A. It seems to me they could, sir; very glad of it. The Charleston & Western Carolina, to show you they can lubricate cheaper than the Coast Line under any circumstances, are to-day lubricating very much cheaper than the Atlantic Coast Line on their car oils, and passenger and freight both, at the same prices that the Atlantic Coast Line are paying for it.

Q. The Atlantic Coast Line runs through a very sandy territory?—A. Very sandy territory.

Q. Practically throughout its entire length?—A. Practically throughout its entire length.

Q. And does that increase the difficulty of lubrication?—A. Very much, sir. Mr. Charles Talbird, who is now dead, was one of the inspectors of the Galena Oil Company when they came down there, and he told me it was one of the most difficult roads he ever saw to lubricate.

Mr. KELLOGG. I move to strike that out as hearsay evidence.

Q. On the Charleston & Western Carolina road, how does the weight of the equipment compare with the weight of the equipment on the Atlantic Coast Line?—A. About the same, I think.

7243 Q. There are no high-speed trains on the Charleston & Western Carolina?—A. None whatever, sir.

Q. Do you know whether the Galena-Signal Oil Company has any oil stations on the line of the Atlantic Coast Line?—A. Yes, sir; they have a number of them. They have one at Norfolk; one at Manchester, Virginia, which is right across the river from Richmond; one at Wilmington; one at Augusta; one at Charleston; one at Savannah; one at Brunswick; one at Montgomery, Alabama, and one at Jacksonville, Florida.

Q. What is kept at those stations?—A. Oil for the locomotives and cars.

Q. And what advantage is that, if any, to the Atlantic Coast Line?—A. It has a very decided advantage, sir; we don't have to carry any large stock ourselves; we get all of our oil in barrels.

Q. Has the New York Lubricating Company any stations along the Atlantic Coast Line?—A. Not that I have ever heard of.

Q. Or did it have at the time they were seeking to get the contract?—A. They did not, Mr. Harrison told me at that time, sir.

Q. And did the Galena company have these same stations in December, 1903?—A. They did, sir.

Q. Was there any reason, in your judgment, that would have attached in December, 1903, for the Atlantic Coast Line to have made a change and given its contract for lubrication to the New York Lubricating Company?—A. I think there would have been a very

7244 great reason, sir, in any change of oil. When we first entered into the Galena contract we were probably twelve months in getting down to good results. We had trouble to begin with.

Q. Were the dangers incident to this change an element in inducing you to give the contract to the Galena Oil Company, notwithstanding the fact that its guaranties were higher than those offered by the New York Lubricating Company?—A. A very large element, sir. If we had bad service and one journal ran off, it might have cost us ten times what we would otherwise have made.

Q. And did the fact that the Galena Oil Company had all of these stations upon your line and the New York Lubricating Company had none enter into the determination as to who should get the contract?—A. Yes, sir; that was partly the reason. The main reason was that we were very much afraid of hot boxes and troubles incident thereto. We had a great deal of trouble with our lubrication before we entered into the Galena contract; a great deal of it.

Q. The Atlantic Coast Line contract was originally taken upon the basis of the previous cost to the road, was it not?—A. We couldn't well arrive at that, sir; we took it on the figure, I think, of $2.25, 2¼ cents for passenger and 1½ for freight. At that time, sir, the Atlantic Coast Line consisted of a whole number of roads, I think ten or twelve, beginning on the North with the Richmond and Petersburg road, 23 miles long.

Q. Was the Charleston & Western Carolina taken upon the basis of its previous cost?—A. Yes, sir.

Q. And to what extent the basis of the previous cost entered
7245 into the Atlantic Coast Line contract, by reason of the fact that it consisted of a number of these smaller lines that were amalgamated, you don't know?—A. I don't know. We couldn't arrive at that. There were so many small roads we couldn't well arrive at the cost, but as well as we could get at it, we got the contract away below the original cost.

Q. You mean below the previous cost?—A. Yes, sir; below the previous cost.

Q. As a railroad man, do you regard that contract as a contract for lubrication or for the sale of oil?—A. It is a contract for lubrication, sir; it states that on its face.

Q. And when you made the contract, as purchasing agent of the company, did you pay any attention, so far as prices were concerned, to any other factor except the cost of lubrication per unit of service?—A. No, sir; not unless the responsibility of the company that was making the contract, of course. We paid a good deal of attention to that.

Q. That is to say, inasmuch as your monthly settlements were made upon the basis of the invoice prices, the responsibility of the company with whom you were making it was a consideration?—A. Undoubtedly so, sir. Also, sir, the responsibility of the company as against any wrongful methods of lubrication; that was a consideration.

Recross-examination by Mr. KELLOGG:

Q. Now, Mr. Fechtig, your contract of December 18, 1903,
7246 provides, "The oil company will furnish the railway company, and in the acceptance hereof the railway company agrees to purchase from the oil company, for its entire present mileage, and any additional mileage that it may construct, lease or in any manner operate (excepting such lines, etc.), a full supply of lubricating oils for locomotives, passenger, and freight cars for a term of two years." That is a straight contract for purchasing oil, isn't it?—A. Yes, sir.

Q. The guaranty is put in there for the purpose of guaranteeing that your cost at the invoice price will not exceed so much per 1,000-mile run, isn't it?—A. Surely.

Q. And if it does cost you more than that they refund to you the difference?—A. But you will see another clause in there that we can hold out the bills for so many months if we want to.

Q. Oh, yes.—A. That will make us good.

Q. I presume so, but it is a straight contract to purchase your lubricating oil, isn't it?—A. Unquestionably, sir, but at the guaranteed basis per 1,000 miles. We wouldn't sign that contract on the gallonage basis.

Q. But you paid the full gallonage price of 51 cents per gallon, 31 cents and 21 cents, didn't you?—A. We did, sir, and we paid a little higher than that at other points, depending upon the delivery. They paid the freight to the delivery point. You are speaking of the Charleston & West Carolina now?

Q. No, the Atlantic Coast Line.

Mr. ROSENTHAL. I forgot to ask him about that.

Mr. KELLOGG. That includes freight; there is no question about that.

7247 Q. The invoice price was 48, 28, and 18 cents?—A. We never bought it on that basis. We bought it on the barrel basis.

Q. You paid 51, 31, and 21, which includes the freight delivered?—A. To Richmond, Virginia. That was the price to Richmond, and to Wilmington, I think, probably.

Q. That already appears. Mr. Harrison's bid, to commence December 31, 1903, was $1.41 for engine oil per 1,000-mile run as against $1.82 of the Galena's, wasn't it?—A. That is right, sir.

Q. His bid for passenger cars was 12½ cents per 1,000 miles run as against 18 cents of the Galena-Signal Company's?—A. That is right, sir.

Q. And his bid for freight cars was 6½ cents as against 10 cents of the Galena-Signal?—A. That is right, sir.

Q. And he agreed to sell you the oil, in the first instance, at 20 per cent off of the following prices: Valve oil, 45; engine oil, 25; car oil, 15?—A. The car oil was a net price, I think.

Q. You are quite right. The others were 20 per cent off?—A. Yes, sir.

Q. Now, those were barrel prices, too, were they not?—A. Those were barrel prices, I think.

Q. And, ordinarily, 2 cents is deducted from that to reduce it to bulk prices, isn't it?—A. I think so; yes. Barrels are considered worth a dollar.

7248 Q. And he added for freight only one cent per gallon for Savannah, 1½ for Jacksonville, 2 cents for Montgomery, and 1½ cents for Augusta, didn't he?—A. (After looking at paper in Mr. Kellogg's hands.) That is right, sir.

Q. And the Galena added 3 cents at every place, didn't it?—A. No, sir.

Q. Oh, I beg your pardon, 2 cents of that was for barrels.—A. Yes, sir.

Q. 1 cent for freight?—A. Yes, sir.

Q. Now, you say the principal reason why you didn't let that contract was the fear that the service would not be satisfactory?—A. That is right, sir.

Q. You never had tried the company, had you?—A. No, sir; we were afraid to take the risk.

Q. That company was lubricating the Louisville & Nashville at that time, wasn't it?—A. I don't know, sir; probably it was.

Q. Didn't he tell you it was?—A. Yes, sir, he told me, but, my goodness I have had 6,000 traveling men since he has been there tell me different things.

Q. The Atlantic Coast Line controls the Louisville & Nashville, doesn't it?—A. I am not posted on questions of that character.

Q. Don't you know that the Atlantic Coast Line operates the Louisville & Nashville?—A. I don't know that it operates it, sir.

Q. It controls it?—A. I understand it owns it. It is so reported in Poor's Manual.

7249 Q. It is generally reported in your territory that it controls it, isn't it?—A. Yes, sir, no question about it, sir.

Q. And at that time the Louisville & Nashville was one of your connecting lines?—A. The Louisville & Nashville was one of our connecting lines.

Q. And you purchasing agents inquire of one another, don't you, about information?—A. Very seldom.

Q. Did you ever attend a purchasing agents' meeting?—A. I have never heard of a purchasing agents' meeting being held in this country.

Q. Well, they have them and I will tell you about them.—A. I will be very glad to know about them, sir.

Q. Did you inquire of the Louisville & Nashville as to whether Mr. Harrison's statements were correct?—A. I did write over there, sir.

Q. Did you get an answer?—A. I did, sir.

Q. Have you got the letter with you?—A. No, sir.

Q. Was it satisfactory?—A. They thought at that time it was satisfactory, yes, sir.

Q. Do you know that at that time Mr. Smith reported it was entirely satisfactory?—A. I don't know.

Q. You have heard that, haven't you?—A. I have heard that, but I don't know anything of my personal knowledge.

Q. His letter to you was, at that time, that it was satisfactory?—A. Yes.

Q. And in spite of that you let the contract to the Galena-
7250 Signal Company at very much larger prices?—A. We did, sir.

Q. Although they were willing to take the Charleston & Western Carolina for less than half?—A. That is right, sir. They could afford to do that as an advertisement.

Q. The Charleston & Western Carolina was a great advertisement, was it?—A. I expect it was.

Q. It wouldn't have been much of an advertisement with other lines if they had known the price, would it?—A. I suppose the other lines in the country are paying more than the Charleston & Western Carolina. But you can certainly operate a small road in lubrication very much cheaper than you can a larger one.

Q. Now, you say the lubrication of the Charleston & Western Carolina is cheaper than the Atlantic Coast Line?—A. To-day, sir.

Q. It uses more oil for its engines than the Atlantic Coast Line, doesn't it, per 1,000-mile run?—A. The oil on the engine is about the same, sir, in round numbers.

Q. Doesn't it use more oil per 1,000-mile run than the Atlantic Coast Line?—A. I don't think so. On some divisions of the Atlantic Coast they use more oil than they do on other divisions. The At-

lantic Coast has been divided into four great divisions, up to the first of May, first, second, third, and fourth. The first division extended as far south as Florence, South Carolina, I think it was; the second division from there down to Savannah; the third division from Savannah over to Montgomery, and the fourth division in
7251 Florida. The fourth division was, generally, the most expensive division in lubrication.

Q. Now, Mr. Fechtig, as a whole, taking the whole Atlantic Coast System together, in 1905 didn't it use less oil per 1,000-mile run of its engines than did the Charleston & Western Carolina?—A. I haven't those figures.

Q. What is your opinion of it?—A. I have no opinion to express, sir, without the figures.

Q. If it should appear that the Atlantic Coast Line did use less oil than the Charleston & Western Carolina, you would want to revise your opinion as to which was the most expensive to lubricate, wouldn't you?—A. I don't know as I would. Take, for instance, on passenger equipment; the Charleston & Western Carolina are lubricating on freight equipment for less than 5 cents, whereas it is costing the Atlantic Coast Line 8 cents or more, and they pay the same prices for oils. I think the conditions and the personal equation have a good deal to do with all those things.

Q. But the engine lubrication is by far the larger proportion, isn't it, in the lubrication of a road, in the proportion of cost?—A. Yes, sir.

Q. From 60 to 80 per cent of it, isn't it, according to the different conditions of different roads?—A. That is about right, sir.

Q. And, therefore, you would not be able to give it as a
7252 positive fact that it was cheaper to lubricate the Charleston & Western Carolina as a whole than it was to lubricate the Atlantic Coast Line, would you?—A. I think probably where one man has charge of a small mileage he can give it more personal attention and hold the men to a greater accountability, and therefore get better results.

Q. But, under similar conditions, you wouldn't think there was a great deal of difference in the cost of lubricating the two systems, would you?—A. Under even similar conditions, sir, you will find different results in all cases of operating a railroad.

Q. But as a whole isn't it a fact that the record shows that the Atlantic Coast Line was lubricated cheaper than the Charleston & Western Carolina? Used less oil, I mean.—A. I haven't compared them in that way, sir.

Q. Well, that would be one of the principal tests, wouldn't it?—A. Yes, sir.

Q. The amount of oil used.—A. I can go over it and compare it for you, but it will take some time; I haven't got the figures here.

Q. The Atlantic Coast Line paid more than double for its oil what the Charleston & Western Carolina did?—A. Yes, sir.

Q. That is correct, isn't it?—A. That is correct, per 1,000 miles. They didn't pay more than double, sir. What year are you talking about?

Q. I was talking about the first year of the contract.—A. The first year, yes, sir; they paid more than double that year.

Q. They paid a great deal more each year thereafter?—A. Yes, sir.

7253 Q. Now, you say there are several oil stations of the Galena-Signal Oil Company on the Atlantic Coast Line Railway?—A. Yes, sir.

Q. You mean, stations where they unload oil from steamships?—A. No, sir; I don't know how they get it there. They deliver it to us. I send my orders to their representative and he makes delivery at those various points. They pay the freight to these delivering stations that I have named.

Q. Do you know whether it is customary on railroads to have delivering points at various places on the road?—A. I presume probably it is, sir. I can't tell you what the custom is except on our road.

Q. You don't know, I suppose, that the Atlantic Coast Line is peculiar in that regard?—A. I don't know anything about that, sir. I don't care to pass an opinion on that.

Q. Take a large system like the Pennsylvania or the New York Central, it is quite probable that they deliver oils at different places on those lines, isn't it?—A. I don't know anything about those lines.

Q. They do deliver to you at different places?—A. They deliver to us at different places and pay the freight to the delivery point.

Q. That is customary, too, isn't it, on other lines of road?—A. I don't know about other lines of road, sir; I can't say.

Q. Well, the Standard charges you for freight to these various delivery stations, doesn't it, in the price?—A. I presume

7254 they do, sir.

Q. They add a certain percentage—that is, 1 cent per gallon—don't they?—A. To certain points, sir, and more to other points.

Q. Well, they add for Wilmington, which is your headquarters, is it?—A. Yes, sir.

Q. They add for Wilmington, South Carolina, 1 cent?—A. Yes, sir.

Q. They add 1 cent to Richmond?—A. Yes, sir.

Q. And they add 2 cents to Savannah, Montgomery, Alabama, and Jacksonville, Florida?—A. Yes, sir.

Q. For freight?—A. You have those figures there. I don't remember the different points, but I think that is about it.

Q. So they charge you for this freight?—A. Sure, sir. They are bound to do it under the interstate commerce law; they can't get out of it.

Q. They could sell you oil at any price, delivered at any point, couldn't they?—A. Yes, sir; but what I mean is they couldn't ship it over our own road.

Q. Oh, certainly; they are bound to figure the freight.—A. They couldn't deadhead it over the Coast Line.

Q. The Standard Oil Company is a large shipper over your line of road, isn't it?—A. I have never gone over that fact; I presume it is.

Q. You don't know anything about that?—A. No, sir.

Q. What is your idea about it?

7255 Mr. ROSENTHAL. What is your guess?

Q. No; not your guess.—A. I expect they are large shippers. They ship a great deal of oil to Wilmington by boat, sir.

Q. And from Wilmington out over your line of road?—A. Yes, sir; from the seaboard.

Q. Were you with the Atlantic Coast Line when they made their first contract with the Galena-Signal?—A. Yes, sir.

Q. You say the price was not fixed at 90 per cent to the Atlantic Coast Line?—A. No, sir; to the best of my recollection it was not. It was fixed on a basis of 22½ for passenger, 12½ for freight, and $2.25 for locomotives.

Q. You say you thought the Galena-Signal could afford to take the Charleston & Western Carolina at a loss in order to get the Atlantic Coast Line?—A. Yes, sir.

Q. You think that was the reason?—A. Oh, I don't think that was the reason for it, sir; but they wanted to keep up the continuity of the service; in other words, they didn't want a common oil put in the Atlantic Coast Line cars that might be on the Charleston & Western Carolina to come over and go over the Coast Line road and cause trouble.

Q. Well, it couldn't have been very common if you had reduced your cost on the Charleston & Western Carolina less than one-half of that on the Atlantic Coast, could it?—A. We paid about 8½ cents for it down there, sir.

Q. And at that price reduced your cost less than half of what you were paying on the Atlantic Coast Line?—A. The price we pay

7256 for oil, Mr. Kellogg, is a very small consideration when compared with the delays and accidents that might follow from the misuse of oil or from the bad use of oil. I say the "misuse" because the inspectors of the Galena Oil Company have corrected that.

Q. Will you produce that letter you had from the Louisville & Nashville road about the satisfaction they expressed?—A. If I can find it, sir; it is in Wilmington, North Carolina.

Q. Will you try and produce it and send it to the——A. I will try and do it, sir.

By Mr. ROSENTHAL:

Q. What is the advantage that accrues to the Atlantic Coast Line in the fact that the Galena-Signal Oil Company has oil stations along its line?—A. Immediate delivery, sir, and a steady supply of oil for lubricating purposes.

Q. The Atlantic Coast Line owns the Charleston & Western Carolina?—A. Yes, sir. I don't think it is the Atlantic Coast Line Railway Company, though, sir.

Q. Well, both lines have the same ownership?—A. Yes, sir.

Q. And the payments, therefore, to the Galena-Signal Company come out of the same treasury?—A. No, sir; different treasuries.

Q. Well, in the last analysis——A. It would be the same; yes, sir.

Q. The same group of owners?—A. The same group of owners.

(A recess was here taken until 2 o'clock p. m.)

7257 W. E. HODGES, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. CRAWFORD:

Q. Mr. Hodges, where do you live?—A. Chicago.

Q. What is your business?—A. General purchasing agent of the Atchison, Topeka & Santa Fe Railway system.

Q. How long have you occupied that position?—A. Since the first of April, 1897.

Q. Prior to that what was your business?—A. For four years traffic manager for Frazier & Chalmers; prior to that, since 1881, in various positions on the Burlington road.

Q. Of what separate roads does the Atchison system consist?—A. To-day?

Q. You may answer first as to 1897.—A. In 1897 the Atchison, Topeka & Santa Fe Railway proper, the Atlantic & Pacific, the Southern California, the San Joaquin Valley, the Gulf, Colorado & Santa Fe.

Q. What different divisions or classifications have been made since then?—A. The consolidation covers now only three grand divisions: The Atchison, Topeka & Santa Fe Railway Company east of Albuquerque and north of Purcell and Shawnee, Oklahoma; Gulf, Colorado & Santa Fe, south thereof; the Atchison, Topeka & Santa Fe Coast Lines, all lines west of Albuquerque, New Mexico. The
7258 Pecos Valley Lines, in the Pecos Valley of Texas, and the Eastern Railway of New Mexico, a line only recently constructed from Belen to Texico, are not included in the above, although part of the system.

Q. Have you had to do with contracts made between the Atchison system and the Galena-Signal Oil Company?—A. I only have made contracts since April, 1897.

Q. How many such contracts have you made?—A. Three.

Q. Do you happen to remember the dates when they were made, or approximately?—A. There was one in July, 1897, one in July, 1900, and one in July, 1905.

Q. The contract which was made in July, 1897; do you remember what the term of that contract was originally?—A. Substantially a guaranty contract.

Q. No; I mean the time term.—A. Five years.

Q. And it covered the various divisions of the Atchison system as it then was, did it not?—A. Yes, sir.

Q. I notice in one of the statements that have been put in evidence the name of the Santa Fe Pacific. I didn't hear you enumerate that among the divisions as existing in 1897.—A. At that time the Santa Fe Pacific was the Atlantic & Pacific, which I enumerated, I believe.

Q. That is the same road as that which you called the Atlantic & Pacific?—A. Yes, sir.

Q. Do you remember whether the guaranties for the different classes of service on these different divisions of the system
7259 were uniform in that first contract or not?—A. My recollection is they were not uniform; that is, they were different as to the respective divisions.

Q. Why was that, in general?—A. As a matter of convenience.

Q. What do you mean by that?—A. They had been previously and had not been changed. I had only taken hold on the first of April and I probably continued the deal just as it was before, or, rather, on the same basis. The conditions are entirely dissimilar, and it was more convenient in figuring it to figure the different divisions separately.

Q. What do you mean by "the conditions?"—A. The operating conditions, the conditions of power.

Q. Just specify what you mean by "conditions."—A. The grade line on the Atchison, Topeka & Santa Fe east of La Junta was a maximum of 1 per cent. Most of the line had that maximum, and relatively the power was lighter. On the Atlantic & Pacific the maximum was 3½ per cent, and the power, consequently, very much heavier. It was a matter of convenience in making the contracts in that way.

Q. In other words, the physical conditions of these different subdivisions were different, and naturally formed the basis for a different guaranty?—A. Yes, sir.

Q. Now, how long did that contract remain in force?—A. Until July 1, 1900, I think.

Q. What happened then?—A. By mutual agreement it was canceled and a new one made.

Q. When you renewed that contract, was it renewed with
7260 different guaranties for each subdivision of the system, or otherwise?—A. No, sir; it was made on one guaranty.

Q. You mean for each class of equipment?—A. Yes, sir.

Q. Why was the earlier contract canceled at that time and this change in the guaranty made?—A. Because the power conditions had changed materially since the original contract was made. The original contract was made in 1897. Almost immediately thereafter we began (as well as other roads) to increase the size and capacity of our power, and the conditions were very onerous on the Galena Company and the contract was remade as of July 1, 1900, to adjust the conditions, or, rather, to adjust the contract to the existing conditions.

Q. Why did you adopt uniform guaranties for the entire system?—A. Because at that time it was the easiest thing to do, as a whole system. I attempted to throw the balance of the years of the contract in one lump and spread the loss that we would make by giving up the original contract into those three years, and I could easiest do it by considering one unit as a whole, taking the dollars and cents. The details of that I can't wholly recall; that is the substance of it.

Q. Do you remember how long that contract lasted?—A. That was for five years.

Q. The second one. And was in force for that time, was it?—A. Yes, sir.

Q. And when was the third contract you spoke of?—A. At the expiration of that one, in July, 1905.

Q. Then, I notice that when you came to that contract there
7261 was again a subdivision of the guaranty.—A. Yes.

Q. Why was that?—A. We simply went back to that because we took the conditions as they existed on the respective divisions and based the guaranty on those conditions as they then existed.

Q. What changes in general conditions on the Atchison had taken place in those five years?—A. Simply the question of increased capacity of power, requiring a larger engine, requiring therefore more lubrication, more parts to be lubricated; compound cylinders had come in as against simple; more wheels; decapod engines had come in as against the eight-wheeler, and then the Santa Fe type after that, and the weight on drivers had increased very materially.

Q. I notice that the guaranties for locomotives in this last contract were somewhat higher than those in the preceding contract. Did those new figures bear any relation to a previous cost?—A. They were based on previous cost, the actual cost.

Q. What previous cost?—A. The cost of the previous year, prior to making the contract.

Q. When you say they were based on it, what do you mean? More, or the same, or less than the previous cost?—A. I don't quite get that question. Perhaps I got mixed up on it.

Q. I want to know what relation the new guaranties in the third contract bore to the cost in the preceding year.

A. Your question, then, is what relation the guaranties in the 1905 contract bore to the previous year's actual cost?

7262 Q. Yes, sir; that is right.—A. The guaranties were less, but were based on it.

Q. That is what I want to know. What is the extent of your authority as a purchasing agent in regard to making contracts for supplies on the Atchison system?—A. Absolute.

Q. What do you mean by that?—A. No one is allowed to make any contracts for supplies other than myself.

Q. Is there anyone to whom you have to refer the contracts before they are made?—A. No, sir.

Q. And was that the fact in regard to these Galena contracts?—A. It has always been the fact as regards all contracts since I took the position.

Q. Including the Galena contracts?—A. Yes, sir.

Q. So, you mean to say that you made these three several Galena contracts in the manner you have testified to, on your own authority?—A. Absolutely.

Q. And without reference to any other superior officer?—A. Yes, sir.

Q. Who is your superior on the system?—A. My superior officer is the president.

Q. What is his name?—A. Mr. E. P. Ripley.

Q. He is the only one whom you recognize as your superior?—A. Yes, sir.

Q. Have you prepared any tables in regard to changes in equipment on the Atchison, Topeka & Santa Fe system?—A. Yes, sir.

7263 Q. And have you such a table in regard to the number of freight cars?

(The witness produces a paper which is marked "Defendants' Exhibit 36.")

Q. I show you Defendants' Exhibit 36, just produced by you. Will you please explain it?—A. This statement shows the number of freight cars owned by the Atchison system, as of June 30, 1897, as compared with June 30, 1906, showing the average light weight and capacity, together with the size of journals.

Q. Will you explain what you mean by "light weight?"—A. The light weight is the actual weight of the car without load; the "capacity" is the capacity of the car to contain a load, or, rather, the number of tons that can be safely loaded in the car.

Q. In other words, it is the weight of a full load, is it?—A. No, sir; the weight of the full load would be the light weight plus its capacity.

Q. I don't pretend to use technical terms, Mr. Hodges, but what I mean is, the figures under "capacity" mean the entire weight of a load if a car was loaded to the limit.—A. No, sir.

Q. Excluding the weight of the car itself?—A. Excluding the weight of the car itself; yes, sir.

Q. It is the weight of the contents of the car when the car is full?—A. Yes, sir.

Q. Now, what have you given in the first column under the year 1897?—A. Total number of cars.

7264 Q. And in the last column, under the year 1897?—A. The size of the journals.

Q. Of the respective cars?—A. Of the respective cars.

Q. And those figures mean that in 1897 you had 26,458 freight cars with journals 4 inches by 7, and also 380 freight cars with journals 4½ inches by 8?—A. Yes, sir.

Q. Under the column marked "capacity," what do the figures 42,000 indicate?—A. That is the average capacity of the 26,838 cars, the total number of cars of that date.

Q. I speak of the first figure, 42,000. That applies, does it not, to the 26,458 total?—A. Yes, sir.

Q. And the 60,000 is the average capacity of the 380 cars?—A. Yes, sir.

Q. And the figures below, 42,300, are the average capacity of all the cars owned at that time?—A. Yes, sir.

Q. That is, the 26,838, and in like manner, under the column "light weight," indicates the average weight, does it, of the car itself, of all the freight cars owned at that time?—A. Yes, sir.

Q. Now, in 1906, what does the first column show?—A. The total number of cars.

Q. Of the different classes?—A. Of the different classes.

Q. And the last column?—A. The size of the journals of the different classes.

Q. And in the column under the heading "capacity?"—A. The average.

7265 Q. The average weight?—A. The average capacity of each class of car.

Q. And under the bottom of that column, 56,000; that is the average capacity of the total number of cars owned by you in 1906?—A. Yes, sir.

Q. Is that correct?—A. Yes, sir.

Q. And, in like manner, under the column "light weight," the figures represent the average weight of the different classes, do they?—A. Yes, sir.

Q. And the final figures, 30,500, represent the average weight of the entire number of cars in 1906?—A. Yes, sir.

Q. Now, comparing the average capacity of the freight cars in 1897, 42,300, and the average capacity in 1906, what is the difference?—A. In 1906, of course, the average capacity is materially greater.

Q. Won't you just subtract it?—A. 13,700.

Q. Now, compare that with 42,300; it shows an increase of a little over 30 per cent, does it not?—A. Yes, sir.

Q. In like manner, comparing the average light weight in 1897 with the average light weight in 1906, the difference is 5,500, is it not?—A. 5,500.

Q. And that is, roughly, an increase of 20 per cent?—A. 20 per cent; yes, sir.

Mr. CRAWFORD. I offer defendants' Exhibit 36 in evidence.

Q. Have you prepared a table of the mileage of the different branches of service, and, if so, will you produce it?

7266 (The witness produces a paper which is marked "Defendants' Exhibit 37.")

Q. I hand you Defendants' Exhibit 37 and ask you t explain that exhibit.—A. This statement shows the car mileage divided into mileage in passenger trains and freight and other trains—the car mileage for 1897 and 1906. It also shows the locomotive mileage for 1897 and 1907, both taken from the annual reports.

Q. Have these statements been prepared by your direction?—A. They were prepared by me from our annual reports, personally this one.

Q. Defendants' Exhibit 36, which you first produced, how was that prepared?—A. That was prepared at my direction.

Q. From the records of the company?—A. From the records of the company.

Mr. CRAWFORD. I offer Defendants' Exhibit 37 in evidence.

Q. Have you prepared a table showing the changes in the locomotive equipment?—A. Yes, sir.

Paper produced by witness marked "Defendants' Exhibit 38."

Q. How has this statement been prepared?—A. It was prepared under my direction by a clerk in my office.

Q. And from what source of information?—A. From the records of the company, both in my office and the mechanical superintendent's office.

Q. Will you state generally what this statement shows?—A. The statement begins with the year 1897, ending with the year
7267 1907, fiscal year ending June 30. It shows the total number of engines. It also shows the number of engines, divided into classes, simple and compound; average weight on drivers, per cent of increase each year, and the increase for 11 years; total number of wheels, per cent of increase in number of wheels each year and for the 11 years; the total number of cylinders and the percentage of increase in number of cylinders each year and for the 11 years; the per cent of increase in number of engines for 11 years; the total ton miles hauled in each year, the percentage of increase in the 11 years; the average ton miles hauled per engine each year, the increased percentage in the 11 years; the cost of lubrication per engine, the increased percentage for 11 years; the lubricating cost per 1,000 ton miles hauled in each year, the increase of the same for the 11 years.

Q. Now, taking up the first column, the exhibit shows that your number of engines increased from 1,027 in 1897 to 1,791 in 1907, does it?—A. Yes, sir.

Q. That amounting to 74.4 per cent.—A. 74.4 per cent.

Q. That increase, however, was of two classes of engines, was it not?—A. Yes, sir; simple and compound.

Q. Explain in a general way what a compound engine is.—A. A simple engine has two cylinders. The compound engine has four cylinders, using the steam twice, as compared with the simple engine.

Q. What useful purpose is served by this multiplication of the cylinders?—A. Economy of fuel.

7268 Q. And how many cylinders has a simple engine?—A. Two.

Q. How many has a compound engine?—A. Four.

Q. Does a compound engine with four cylinders haul any more tons of freight than a simple engine of two cylinders of the same size?—A. No, sir.

Q. The difference is in the saving of fuel, is it?—A. That is all.

Q. That is to say, a given amount of power is obtained at a less expenditure of coal?—A. Yes, sir.

Q. Taking the next two columns, your exhibit shows that the average weight resting on the drivers of these locomotives has increased in the eleven years by about 60 per cent—60.09; is that right?—A. Yes, sir.

Q. Similarly there has been an increase in the number of wheels upon these locomotives in that period, amounting to 93.04 per cent?—A. Yes, sir.

Q. What bearing has the increase in the number of wheels on the question of lubrication?—A. You can't lubricate two wheels as cheaply as you can one.

Q. Every wheel has a journal, has it not?—A. Every wheel has a journal, and every wheel must be lubricated.

Q. Every journal has to be lubricated?—A. Yes, sir.

Q. So that, in a rough way, as you increase the number of wheels you must increase the amount of lubrication to be done; is that so?—A. Yes, sir.

Q. Taking the next two columns, they show, if I understand you, that the total number of cylinders on all the locomotives in
7969 1897, on the Atchison system, has increased by 138.36 per cent. Is that correct?—A. Yes, sir.

Q. So that the increase in the number of cylinders was very much greater than the increase in the number of wheels or than the increase in the average weight?—A. Yes, sir.

Q. What bearing upon the question of lubrication has the increase in the number of cylinders?—A. It has certainly doubled it, where you have doubled the number of cylinders.

Q. Why?—A. Because you have two cylinders instead of one, or, rather, four cylinders instead of two to lubricate. Presumably it costs as much to lubricate one cylinder as another.

Q. That is to say, every cylinder has to be lubricated?—A. Yes, sir.

Q. If there are four cylinders to be lubricated than if there are only two to be lubricated?—A. Yes, sir.

Q. Now, while the number of cylinders have been increased in the way shown here, what is the fact as to the average size of the individual cylinder?—A. They have materially increased.

Q. So that you not only have much more than doubled the number of cylinders, but also there has been an increase in the average size, has there?—A. Yes, sir.

Q. What effect would that increase in the average size have?—A. The greater the bearing surface, the greater the amount of lubrication.

Q. And all these elements which call for greater amount of lubrication mean a greater expenditure of oil, other things being equal, do they?—A. Yes, sir.

Q. And the more oil the more cost to the oil company, is that so?—A. Yes, sir.

Q. The more oil expended on the locomotive the more it costs to lubricate it?—A. Surely.

Q. Now, under the first column in the second part of the exhibit, under total "ton miles hauled," are certain figures. Will you explain what a ton mile is?—A. It is the total number of tons hauled multiplied by the miles those tons are hauled. A freight car with 60 tons of freight hauled 100 miles will be 6,000 ton miles.

Q. One ton mile, then, is one ton hauled one mile, is it?—A. Yes, one ton hauled one mile.

Q. And these figures in this column show the total ton miles in the different years there mentioned?—A. Yes, sir.

Q. And for the 11 years they show an increase of 231 per cent, do they?—A. Yes, sir.

Q. Considerably more than three times the amount in 1897?—A. Yes, sir.

Q. Now, in the second column, the lower part of the page, under the head of "average ton miles hauled per engine," what does that mean?—A. That is the total ton miles hauled divided by the number of engines in the respective years.

Q. Thus giving the average number of ton miles achieved by each engine year by year?—A. Yes, sir.

Q. The figures at the bottom show that the ton miles hauled on the average by a single engine have increased by 90 per cent?—A. Yes, sir.

7271 Q. From 1897 to 1907?—A. Yes, sir.

Q. Now, will you explain the next column headed "cost lubrication per engine?"—A. That is he net cost of lubrication divided by the number of engines lubricated in the respective years.

Q. What do you mean by the net cost of lubrication?—A. The actual payments for lubricating locomotives.

Q. It is the cost, in other words, to the Atchison system, is it?—A. Yes, sir.

Q. And in 1897 that was $36.74, on the average, for a single engine, was it?—A. Yes, sir.

Q. And in 1907, in like manner, it was $74.73 for a single engine or locomotive, was it?—A. Yes, sir.

Q. And that increase was about 103 per cent, was it?—A. Yes, sir.

Q. In the 11 years. Now, explain the last column headed "lubricating per 1,000 ton miles hauled."—A. That is found by taking the net cost per engine and dividing it into the number of ton miles hauled.

Q. That is, in 1897, dividing the $36.74 by 2,008,251, which was the average ton miles per engine in that year; is that correct?—A. Yes, sir.

Q. And following the same system year by year through the 11 years?—A. Yes, sir.

Q. What, then, did you find to be the cost to the railroad of lubricating a locomotive per thousand ton miles hauled on the Atchison system in 1897?—A. 1.89 cents.

7272 Q. And what did you find the cost of lubricating locomotives per 1,000 ton miles in 1897, on the same system?—A. 1.96 cents.

Q. The difference between those is what?—A. 3.7 per cent.

Q. Never mind the per cent. What was it in cents or fractions of a cent?—A. 7/100 of a cent.

Q. Expressed decimally it would be .0007, would it not?—A. Yes, sir.

Q. Now, in terms of percentage, what percentage of increase over the cost in 1897 does that show?—A. 3.7 per cent.

Q. I notice the figures at the bottom of the column are expressed in such a way as to create some doubt as to the meaning. Should not the decimal point be between the 3 and the 7?—A. No; because the percentage mark is after it.

Q. Well, as it reads it is 37/1000 per cent, is it not?—A. I guess you are right.

Q. It should be 3.7, should it not?—A. Yes, sir.

Q. On account of the fact that the percentage mark is after it?—A. that is right.

Q. However that may be, what you mean to say is that the increase, expressed in terms of percentage, is 3.7 per cent?—A. Yes, sir.

Q. Is that right?—A. Yes, sir.

Q. Now, while the cost per 1,000 ton-miles hauled on loco-
7273 motives has increased, therefore, 3.7 per cent, the number of cylinders, as you stated, has increased 138.36 per cent. From the figures that are here given, and supposing that all the engines had remained simple engines, each having only two cylinders, can you state what the relative cost of lubricating per 1,000 ton-miles hauled would have been, comparing 1897 with 1907?—A. Not exactly.

Q. Can you state approximately?—A. It would be materially less in 1907 than in 1897.

Q. In other words, the slight apparent increase in the cost of lubricating per thousand ton-miles is due to the large increase in the cylinders, is it?—A. Certainly a large portion of that; yes, sir.

Q. Mr. Hodges, has the Galena Company maintained an expert on the Atchison system while you have been purchasing agent?—A. Yes, sir; always.

Q. What is your opinion of the value of the expert system of the Galena Company?—A. I consider there is great value in having an expert who does nothing else but watch lubrication.

Q. How much authority or power do you give to the Galena experts on the Atchison system, or how much is given to them?—A. In detail I can't say. That is handled by the mechanical department. But, generally, it is expected, and I think it is a fact, that his instructions are followed.

Q. Do you know whether the railroad officers and organization endeavor to cooperate with the experts?—A. Always; yes, sir.

7274 Q. Cooperate with them in what way, to what end?—A. To see that the instructions given by the Galena expert are carried out. I personally, very frequently, on request of Mr. Palmer, the expert, called particular attention to certain things, although it is not directly in my line.

Q. What sort of things?—A. Imperfect lubrication, lack of care. I have in mind particularly the question of saving the oil from waste. I think that Mr. Palmer has done a great deal in that direction. We are now saving oil that within three years we were wasting. The detail instructions that are given I, as a rule, do not hear.

Q. What do you consider the essential nature of this contract between the Atchison Company and the Galena Company is?—A. The guaranty and the responsibility of the company.

Q. Well, is it a contract for the sale of oil by the gallon, or for something else?—A. The question of lubrication. It is a purchase of lubrication, if you please, a contract for lubrication.

Q. What do you consider you are buying when you make a contract with the Galena Company?—A. Buying lubrication. I don't believe I have looked at the price of the oil since the first year I made the contract.

Mr. CRAWFORD. I offer Defendants' Exhibit 38 in evidence.

Q. Exhibit 37 shows car and locomotive mileage, does it?—A. Yes, sir.

Q. As distinguished from Exhibit 38, which shows ton mileage where it shows any mileage?—A. Yes, sir.

7275 Q. Have you made a contract with another company which resembles the Galena contract in some of its features?—A. Yes, sir.

Q. With what company?—A. The American Brake Shoe & Foundry Company.

Q. Without going into details, what does that contract relate to?—A. The use of driver brake shoes.

Q. What is a driver brake shoe?—A. A driver brake shoe is the shoe which is used on the locomotives to create the friction necessary to stop the train.

Q. How large a number of brake shoes is used on any large system? Is it a great number or a small number?—A. My recollection is that before this contract I used about 1,200 tons a year.

Q. In a rough way, how many shoes are there in a ton, do you know?—A. I should say they would weigh about 40 pounds apiece, on the average.

Q. So that would be about 50 shoes to a ton?—A. That is purely a guess. You see they varied so much in the size of the engine—the radius of the wheel.

Q. When did you make this contract with the American Brake Shoe & Foundry Company?—A. About three years ago. It is on its last year.

Q. About three years ago?—A. Yes, sir.

Q. Prior to that time how had you purchased the brake shoes that were used on the system?—A. So much a ton.

Q. From what?—A. From various concerns.

7276 Q. At how much a ton?—A. That would be based on the price of pig iron, and probably, my recollection is, that three years ago it ran about $33 to $34 a ton for the driver shoes.

Q. Have you a copy of the contract which you made with the American Brake Shoe & Foundry Company?—A. I have.

(Witness produces paper which is marked Defendants' Exhibit 39.)

Mr. KELLOGG. Let him state what it is. I have no objection to his stating the substance of it.

Q. I hand you Defendants' Exhibit 39. Will you explain the contract and its principal features?—A. The contract is substantially the same as the Galena contract in that it provides for a unit of cost for the brake shoes, but also provides that with the exclusive use of those particular shoes, the cost per mile or per 1,000 miles shall not go above a certain figure; that is, for the first year of the contract the cost shall not be any greater than the cost of the preceding year. This in spite of the fact that I was paying an average of between $33 and $34 for the brake-shoes prior to this contract, and I paid at the rate of $70 per ton for the Perfecto shoe.

Mr. KELLOGG. I object to the testimony as immaterial. I don't object to the competency of it, and I am willing the gentleman's statement of the contract, that it is substantially like the Galena's, and with his explanation, may be taken in lieu of the written copy, because the copy costs a good deal of money to put in and print.

Mr. ROSENTHAL. I think we ought to have that contract.

7277 Mr. KELLOGG. All right. I object to it as immaterial.

Mr. CRAWFORD. We can withdraw it later, if we deem advisable.

Q. What was the price per ton under this contract?—A. $70.

Mr. KELLOGG. This may all be taken subject to the objection as immaterial?

Mr. CRAWFORD. Certainly.

Q. And there was a provision, was there, that, although that was the price per ton, the brake shoe company guaranteed the railway company that the cost—the total cost—to the railway company for brake shoes, during the first year, should not be more per 1,000 engine miles than the cost during the preceding year?—A. That is right.

Q. Of the old shoes?—A. Yes, sir.

Q. At the cheaper price. Also that during the two following years there should be a certain percentage of saving as compared with the cost before this contract went into effect? Is that correct?—A. Yes, sir.

Q. Now, in the operation of that contract, how has it worked out? Take the first year.—A. I haven't the detailed figures with me, but the first year it worked out so that they did not have to pay me anything; it didn't cost as much. The second year I saved, not including

cost of transportation of less material, practically 10 per cent. The third year I haven't the figures on.

7278 Q. Then, for the first and second years the Brake Shoe Company more than made good on the guaranty, did it?—A. Yes, sir.

Q. That is, it actually cost you less than the limit which they had guaranteed you it should cost you?—A. Yes, sir.

Q. Although the price per ton of the shoe mentioned in this contract was more than twice as great as the price per ton of the shoe which you had used before you made this contract?—A. Yes, sir.

Q. That would indicate that the total number of shoes used under this contract was not so great as formerly used; is that the fact?—A. Yes, sir.

Q. How did the number compare?—A. The number was less than half.

Q. In other words, using a higher priced shoe but of superior quality, you used less than half as many, did you?—A. Yes, sir.

Q. And therefore, though you were nominally paying more than twice as much for the shoes per ton, you got your service out of the shoes for less money?—A. That is correct.

Q. I notice this other provision in the contract: "The Brake Shoe Company shall have the right to send a representative at such time or times as it may deem best during the continuance of this contract to the various division points of the railway company for the purpose of instructing the railway company's employees in the use

7279 of the steel-backed shoe and examining and inspecting the brake shoes in service, in stock, and in scrap piles." Did the Brake Shoe Company, in fact, send such a representative to your system?—A. They always had one and sometimes two m[illegible] particularly the first year.

Q. And what did those men do?—A. Those men traveled all o[ver] the system instructing our men how to properly apply the shoes, how to use them, picking shoes up out of the scrap and telling us how we could use them to the end of their life; in other words, specializing and in going into the details of brake shoes, and brake shoes alone, and watching them with the consequent natural result of less cost to us.

Q. Who paid those inspectors?—A. The Brake Shoe Company. I furnished them transportation.

Q. You furnished them transportation, did you?—A. Yes, sir.

Q. Was that in the contract?—A. I am not sure whether it is or not.

Q. I notice this language: "The railway company is to furnish free transportation to such inspectors when so engaged."—A. Yes, sir.

Q. That was the provision, was it?—A. Yes, sir.

Q. That is to say, they were furnished with passes, I suppose, while they were on the work called for by the contract?—A. Yes, sir.

Q. Will you look a moment at this Exhibit 39 and tell me whether the marginal notes which appear on the copy were in the orig-

7280 inal contract or not?—A. Yes, sir.

Q. They are part of the contract?—A. Yes, sir.

Mr. CRAWFORD. I offer defendants' Exhibit 39 in evidence.

Mr. KELLOGG. It is objected to as immaterial.

Cross-examination by Mr. KELLOGG:

Q. You say you consider the price per gallon of Galena oil named in the contract as entirely immaterial?—A. I should say so; yes.

Q. Your guaranty, for instance, for locomotives, taking the year 1897, was a guaranty of $1.33\frac{1}{3}$ per 1,000-mile run at the invoice price of the oil, wasn't it?—A. I assume it was.

Q. In other words, with valve oil at 48 cents and engine oil at 28 cents, they guaranteed you that it would not cost your road more than $1.33\frac{1}{3}$ per each 1,000 miles a locomotive should run; isn't that right?—A. What was that year?

Q. 1897.

Mr. CRAWFORD. Show him the statement. You wouldn't expect him to remember that.

A. I assume those figures are correct.

Q. That is correct, isn't it?—A. I assume they are as you say; I don't know the detailed figures.

Q. But it was a guaranty that, at the invoice price of the oil to your company, it should not cost more than so much per thousand-mile run; isn't that right?—A. That was the guaranty; yes, sir.

7281 Q. Now, if that invoice price was one-half as much, it would cut a very great figure, wouldn't it?—A. Possibly; yes.

Q. It is absolutely certain it would, isn't it?—A. If I didn't make the guaranty.

Q. Then, the invoice price does cut a figure, doesn't it?—A. It cuts a figure in a way, but not on the whole——

Q. The invoice price is the basis on which you figure it?—A. The basis of the guaranty, of course.

Q. And one is just as important as the other in making the figures?—A. No, sir.

Q. How can you make the figures without the invoice price?—A. Well, possibly not on that basis.

Q. Then it is material, isn't it?—A. I wouldn't consider them so at all.

Q. Then why is it put in there?—A. Simply as a matter of adjustment once a month.

Q. But, Mr. Hodges, isn't it a guaranty that at the invoice prices it will only cost your company so much?—A. Yes; that is a fact.

Q. Then it is important, isn't it?—A. I don't catch your point, Mr. Kellogg.

Q. If the price per gallon was one-half that price, your guaranty would have to be correspondingly higher, wouldn't it?—A. Correspondingly lower, wouldn't it?

Q. Well, lower, then.

Mr. ROSENTHAL. How would it affect the guaranty at all?

Mr. KELLOGG. Because it is guaranteed that at the invoice price it shall cost the company only so much.

Mr. CRAWFORD. Where is the contract? Let us see the contract.

7282 Q. Now you say, when you figure up at the end of the year, to find out whether it has cost your company more than $1.33½ per thousand mile run, what price do you figure the oil at?—A. I don't figure the price of the oil at all.

Q. Then how can you tell what it has cost you?—A. I haven't done this for quite a good many years. My clerk does it. I take the total price.

Q. At what price?—A. At the total amount of oil.

Q. At what price?—A. Don't take it at any price at all.

Q. But you have to, in order to arrive at the price, don't you?

Mr. ROSENTHAL. Let him finish his answer.

WITNESS. I simply don't know the price of the oil, for instance, in going into that. I take my total invoice cost, my vouchers, if you please, and divide it by the number of miles made, and see where I land. Now, when I land that, I take my guaranty. If my guaranty is less, I have got so much to get back.

Q. Now, you say you get the total cost of all the oil used on the system, do you?—A. Yes.

Q. How do you get that total cost?—A. From my invoices.

Q. But at what price per gallon?—A. At the price shown in the contract.

Q. 48 cents, 28 and 18, isn't it?—A. Possibly.

Q. Well, is there any question of possibility about it? It is that price, isn't it?—A. It is that price, I suppose——

Q. Then you do use the invoice price in arriving at the cost, don't you?—A. No, I don't.

7283 Mr. ROSENTHAL. No, of course he doesn't.

WITNESS. Of course I don't. I simply take the total figures on my vouchers—the total figures on my invoice.

Q. How do you find out how much it did cost the Santa Fe Company—all the oil that it used in one year?—A. By taking the total amount of my vouchers.

Q. How do you get the total amount of your vouchers?—A. The total amount of my vouchers—it is simply totaled right out.

Q. Total of what?—A. The total number of gallons, at the price you have stated there.

Q. 48, 28, and 18?—A. That don't make any difference; as far as that is concerned, they could charge me 78 cents.

Q. Then the total cost would be different, wouldn't it, if it was 78 cents?—A. Of course it would, but in making my monthly settlements, that is simply a matter of making the monthly settlements.

Q. But the guaranty is that it won't cost your company more than so much per thousand mile run at the invoice price, isn't it?—A. No, the guaranty is so much a thousand miles.

Q. But at what price?—A. They simply make that price for a monthly adjustment—monthly voucher. Having that guaranty, I don't care anything about the price. I have got the right to hold out

two or three months' vouchers, if I am being overcharged. No question about it.

Q. Now, I notice here, for the year 1906, the total cost of oil
7284 to the Santa Fe Company, at the invoice prices, was $173,717.47. How did you get that price? At what price per gallon was it figured to get that?—A. I didn't figure it per gallon at all. Mr. Kellogg, once a month my office receives—we receive these invoices on shipment. We take those invoices and we voucher them. That is a part payment on the contract; a monthly payment, if you please, on the contract. I don't suppose my clerk, who makes up these statements annually, looks at the price per gallon. He takes my voucher clerk's statement or my statement of vouchers from the Galena Oil Company, and totals them up; and in that is not only the oil but also the grease which is not specified in the contracts at all, and any other special lubricants—two or three times in the contract. It is not a question of the price of oil. The question of crank grease, lubricator grease, and everything else like that comes in there. There is nothing in the contract in regard to that. He takes the total amount of those vouchers and divides it into his mileage, and that is what he gets. I don't believe he looks at the price at all.

Q. What is the bill rendered to you, showing the voucher? It is so many gallons at such a price, isn't it?—A. Yes, sir.

Q. The gallon price is 48 cents for valve oil, isn't it?—A. Yes.

Q. It shows right on the face of the bill?—A. Sure.

Q. And it is figured at 48 cents, to make up the total cost?—A. Sure.

Q. Then the price does figure, doesn't it?—A. But my man, when he is figuring that, does not count that in at all. That is purely a question on the monthly statement.

7285 Q. Oh, certainly.—A. Yes, I know—you are stating that quite correct, Mr. Kellogg.

Q. Now, in your statement for the year 1906, you have this statement: "Total gallons of valve oil, 29,615.58 gallons at 48 cents, making $14,215.50;" is that correct?—A. I don't know whether I made those figures or not. Did these come out of my office?

Q. They came out of the Galena Oil Company's office.—A. Well, these are not my figures.

Q. Well, this is the statement.—A. Well, they are not my figures; I didn't make those figures.

Q. Well, don't your statements of the amount of oil shipped to you show the price?—A. Surely.

Q. 48 cents a gallon for valve oil?—A. Surely.

Q. And 28 cents for——A. Yes, sir.

Q. And the total price is got by multiplying the number of gallons by the price per gallon?—A. Yes.

Q. And the price per gallon is on the receipt?—A. Surely. That is for the convenience of the Galena Oil Company and ourselves in settling up once a month.

Q. That is why it is done?—A. Sure.

Mr. ROSENTHAL. That does not represent the ultimate cost at all?

WITNESS. Not the slightest. It hasn't anything to do with it.

Q. In 1898 I notice that the guaranty of the locomotive service on the Santa Fe road was $1.20 for each thousand miles; is
7286 that correct?—A. That is correct.

Q. And in 1906 it averaged about $2.64?—A. It is somewhere about there, yes, sir.

Q. That is an increase of about 120 per cent, isn't it?—A. Possibly, yes, sir.

Q. The average weight of your locomotives increased one-half that, or 60 per cent, didn't it?—A. Yes, sir.

Q. The average number of cylinders per locomotive increased 36 per cent about, didn't it?

Mr. CRAWFORD. 138 per cent.

Q. 36 per cent, didn't it, per locomotive, on an average?—A. I guess I have lost that question, then.

Q. The percentage of average increase per locomotive was about 36 per cent, wasn't it—taking all your locomotives?—A. Where is that?

Q. Well, there was an average of two cylinders, say, per locomotive. Multiplying the total number of locomotives.—A. I may be blind, Mr. Kellogg, but I can't see your figures.

Q. Well, what was the average number of cylinders on your locomotives in 1897?—A. The total number of cylinders in 1897 was 2,054.

Q. The total number of your engines in 1897 was 1,027, wasn't it?—A. Yes, sir.

Q. Two cylinders to the locomotive?—A. Yes, sir.

Q. Or 2,054 cylinders?—A. Yes, sir.

Q. The total number of engines in 1907 was 1,791 wasn't it?—A. Yes, sir.

7287 Q. And the total number of cylinders was 4,896, wasn't it?—A. Yes, sir.

Q. Now, that is 2.73 per engine—if they were divided equally—isn't it?—A. Somewhere about there; a little less than three.

Q. That is just about 36 per cent increase, isn't it?—A. Possibly.

Q. Well, isn't that correct? That is about 36 per cent, isn't it?—A. I haven't figured it out.

Q. Well, you can see at a glance that it is just about 36 per cent?—A. I am not as quick as you are at figures, Mr. Kellogg. If you will give me a pencil, I will figure it out for you.

Mr. ROSENTHAL. He is not so quick, you know. That is, Durand.

Mr. KELLOGG. No; I am not very quick; I am very dull.

WITNESS (after having figured). About 37 per cent; yes, sir.

Q. Now, then, the substance of this is, that between 1898 and 1907 the weight of your engines as shown by this exhibit has increased 60 per cent, in round figures, on the average?—A. Yes, sir.

Q. And the cylinders, on an average, 36 per cent?—A. No, sir; you are mistaken on those figures.

Q. Well, 37 per cent?—A. Well, 37 per cent, even that—you are taking your total number of engines, whereas you should take the total number of simple engines as compared with the total number of compounds. That basis is wrong.

7288 Q. The total number of cylinders, on the average for each locomotive, has increased at least 37 per cent; that is right, isn't it?—A. Yes; I guess that is right.

Q. And the cost per thousand miles' run of each locomotive increased 120 per cent; is that correct?—A. Hold on. Where do you get that 120 per cent?

Q. Of the guaranteed cost per thousand miles from 1898 to 1907.—A. Oh, that guaranty per thousand miles, I haven't figured that; it don't amount to anything.

Q. Well, you have answered that it did, about 120 per cent; that is correct, is it?—A. Probably about 120 per cent.

Q. And the actual cost for hauling a ton 1,000 miles increased from 1898 from 1.63 to 1.96 cents?—A. That is quite correct.

Q. That was the year of the 120?—A. Yes, sir.

Q. Now, the Standard Oil Company is a very large shipper over the Santa Fe road, isn't it?—A. I presume it is.

Q. You know it is, don't you?—A. No, sir; I have no knowledge in that direction.

Q. You have no knowledge?—A. Only in a general way.

Q. You don't know what they ship over the Santa Fe road?—A. I do not know; no, sir.

Q. Well, you know there is a very large oil business in California, don't you?—A. Yes, sir.

Q. You have heard, haven't you, in the course of your business, of very large shipments of oil by the Standard Oil Company over the Santa Fe Line?—A. I have.

7289 Q. And you have heard of large rebates paid by the Standard Oil Company to the Santa Fe Company, haven't you?—A. I have heard of some alleged rebates.

Q. In the State of California?—A. Some alleged rebates; yes, sir.

Q. Well, your general traffic manager stated that they had paid rebates in the State of California, didn't he?—A. I think that is a matter entirely outside of my jurisdiction, Mr. Kellogg, and something that I don't know anything about except from newspaper hearsay.

Q. You have seen the tank line cars of the Standard Oil Company on your line frequently, haven't you?—A. I have, frequently, and I assume——

Q. How many Standard Oil directors are there on the Santa Fe line?—A. I think Mr. Rogers is the only one.

Q. Mr. H. H. Rogers? Your company has used the Galena-Signal oils ever since you have been on the system?—A. Yes, sir.

Q. You never asked a bid of any other concern, did you?—A. No, sir.

Q. You never investigated the cost on any other road?—A. Not personally; no, sir.

Q. You don't know anything about it?—A. No, sir.

Q. You made no inquiries about the cost on any other road?—A. Not officially.

Q. Now, you have been in the railroad business how many years?—A. Since 1881.

Q. During that time there have been a great many improve-
7290 ments in all branches of the service, in railroading, haven't there?—A. Yes, sir.

Q. Whereby the cost of hauling freight per ton mile has been greatly reduced?—A. Yes, sir.

Q. And the service very much more efficient than it used to be?—A. Yes, sir.

Q. The rates have been very greatly reduced?—A. Yes, sir.

Q. And do you know of any branch of railroad service that has not been improved in that length of time?—A. Practically everything has improved, naturally; generally by specialization.

Q. In other words, the railroad companies now, and for many years, have kept accurate statistics so they could show whether cost of certain service in separate branches is increasing or decreasing?—A. Yes, sir.

Q. And there has been generally a very great decrease in the cost of service?—A. Generally speaking.

Q. When you made your new contract, in 1905, the guaranties in the new contract were based on what?—A. Based on the best adjustment that Mr. Steinbrenner and I could get together on.

Q. The best bargain that you could make?—A. The best bargain I could make.

Q. They were not based on the actual cost to the Santa Fe Company for the preceding years?—A. No, sir.

By Mr. CRAWFORD:

Q. Mr. Hodges, I understood you that the new guaranties, made in 1905, had a relation to the cost for the preceding year.—
7291 A. That is correct.

Q. What you have just stated seems to be inconsistent with that. Will you please state what the fact was?—A. Mr. Kellogg's question was on the adjustment in 1900, if I recall it.

Mr. KELLOGG. The 1905 contract.

WITNESS. I misunderstood Mr. Kellogg, then. I understood him to ask as to the figures of that 1900 contract.

By Mr. KELLOGG:

Q. Was the 1905 contract—which was the last contract you made——A. Yes, sir.

Q. —based upon the actual cost to the Santa Fe Company for the preceding years, or the best bargain you could make?—A. Why, it was both. It was lower than the actual cost of the Santa Fe Company for the preceding year. It is specifically stated in the contract that it is based——

Q. What do you mean by the actual cost?—A. The cost as near as we could figure it.

Q. You had been paying $1.82, and in your new contract you increased it.—A. Very true. Our power had increased materially. I mean the actual cost less the refunds under the contract.

Q. Based on the invoice price, you mean?—A. Based on the monthly payments.

Q. Invoice price?—A. Monthly payments.

Q. Well, that is invoice price, isn't it?—A. No, sir; it isn't.

7292 Q. Do you settle every month with them?—A. On monthly invoices; yes, sir.

Q. Well, the monthly invoice is based on the invoice price, isn't it?—A. No; I don't settle. I simply make an advance payment.

Q. You pay an amount for gallons of oil at the invoice price, don't you?—A. No, sir; I do not. It may figure out that way, but I simply make an advance payment.

Q. Now, do you swear that you do not pay the Galena-Signal Oil Company the total amount of oil each month figured at the invoice price?—A. As I understand it, I do not, sir.

Q. You do not?—A. I do not.

Q. What price do you figure it on?—A. I figure it simply on a monthly advance payment that is agreed to in the contract, for convenience. It may be the price of oil, if you please, but absolutely——

Q. What is the price agreed in the contract for the monthly payment?—A. 48, 28, and 18, if I remember right.

Q. That is the invoice price, isn't it?—A. Figured that way.

Q. And it is paid each month, isn't it?—A. We pay monthly on the invoices.

Q. Yes, sir; and pay the invoice price each month?—A. No, sir; we don't.

Q. What do you pay?—A. Pay the total amount.

Q. At what price?—A. No price at all; simply an adjusted price, that is all.

7293 By Mr. CRAWFORD:

Q. What determines the ultimate cost to you under this contract?—A. The ultimate cost under this contract is the guaranteed price—the guaranteed cost.

Q. You mean the guaranteed cost per thousand miles?—A. Per thousand miles; yes, sir.

Q. Per thousand car or locomotive miles?—A. Per thousand car or locomotive miles; yes, sir.

Q. Whatever amount you make up monthly, and by what other name you call them, do those amounts determine the ultimate cost to you under this contract?—A. Why, I have been trying to make Mr. Kellogg understand that——

Q. Wait a minute; never mind Mr. Kellogg now.

Mr. ROSENTHAL. That is hopeless; you can't do that.

(The question was read to the witness.)

A. No, sir; they do not.

Q. Is it not a fact that the standard by which the cost to you under this contract is measured, and the only standard, unless you fall below

the guaranties, is the price per thousand miles of service?—A. Yes, sir.

Q. And whatever amount you may pay monthly you look for the question of absolute cost to the amount which results from multiplying the total mileage in each class by the guaranty, do you not?—A. Yes, sir.

Q. And if the amounts that you have advanced from month to month in the total exceed the product of the mileage by the
7294 guaranties, then you receive back the excess, do you not?—A. Yes, sir.

Q. So that in the last analysis it is the guaranties which determine what the cost is to you?—A. That is quite correct. That is what I was trying——

Q. Is it not a fact that if the nominal price per gallon were twice what it is now, and even if you paid twice as much per month as you do now, or one-half as much, or any other fraction, more or less, in the last settlement you would pay the mileage multiplied by the guaranties, and no more?—A. That is all.

Q. Now, do you happen to carry in your mind the guaranties in that contract of 1905?—A. I think $1.85, wasn't it? $1.85 for locomotives?

Q. The contract made for 1905. Perhaps this will refresh your memory. [Handing paper to witness.] See if that refreshes your memory, and tell me what the guaranties were in the contract of July 1, 1905.—A. The Atchison, locomotives, $2.71; Coast Lines, $3.30; Gulf Line, $1.90; passenger cars, 12; freight cars, 7 cents, all divisions.

Q. Now, can you tell, by refreshing your memory from that paper, what the cost in the various classes had been in the preceding year?—A. This was made up by me, but I am afraid there is an error in here. This says——

Q. Never mind; don't read from it, please. I simply asked you to refresh your memory from it.—A. The preceding year, my rec-
7295 ollection is that the Atchison was $2.81; Coast Line, $3.37, and Gulf Line $1.93¼.

Q. That was the preceding year, the actual cost?—A. Yes, sir.

Q. That is your best recollection?—A. Yes, sir.

Q. If your recollection on that point is correct, then the guaranties which were inserted in that contract of July 1, 1905, were slightly less than the actual cost for the preceding year in the various classes of equipment?—A. Yes, sir.

Q. What kind of oil is used on cylinders?—A. The valve oil; an expensive oil.

Q. The invoice price of that is much greater than of the other oils, is it not?—A. Yes, sir.

Q. So that as you increase the quantity of valve oil used proportionately, it would increase the proportionate cost to the oil company, would it not?—A. Exactly.

Q. And these figures in Exhibit 38, showing an increase in the number of cylinders, means a corresponding increase in the quantity of valve oil used, does it?—A. Yes, sir.

Q. You were asked about the increase in the guaranties between certain years. Upon what are those guaranties based; car miles or ton miles?—A. On engine miles and car miles.

Q. Not upon ton miles?—A. No, sir.

Q. Which is the true test of the cost to the railroads of lubrication, is it ton miles or car miles?—A. As I see it, ton miles.

Q. Why?—A. The railroad earns its money from hauling tons distances. Its expenses are increased or decreased largely in proportion to the tons hauled and the miles they are hauled.

7296 Therefore, all these expenses should be figured on the ton mile basis. The engine mile and the car mile are misleading. It of course costs more money to operate a large engine or a large car, but it doesn't make any more miles, and thereby reduces the unit of cost per engine. What that engine or that car can haul in tons, and, in the final analysis, the tons one mile, it seems to me is the only measure that can be used; that any other figures are misleading and calculated to put anybody wrong rather than right.

Mr. KELLOGG. Why didn't you make your contract on that basis?

Mr. CRAWFORD. Wait a moment, please.

WITNESS. I will answer that.

Mr. CRAWFORD. Wait a moment. Don't answer that question.

Mr. KELLOGG. No, don't answer it. You can't.

Mr. CRAWFORD. He will answer it entirely to our satisfaction, and to the satisfaction of the court.

Mr. KELLOGG. I have no doubt he will, to your satisfaction.

Q. Why are car miles made the basis of the cost of lubrication under these contracts?—A. Because it always has been; that is the easiest way to figure it, and, relatively, as between the years, it is fair; but relatively, as between rates or relatively to find out the actual cost, it is not; it is simply a matter between the Galena Oil Company and the Atchison road in making the deal; simply a matter of dicker and trade, and that is used as a unit, that is all.

7297 Q. Suppose the guaranty to remain the same; would it be more to the advantage of the railroad to figure car and locomotive miles, or to figure ton miles?—A. I would rather figure car miles.

Q. Why?—A. In the first place, an error in calculation is not so serious on a car mile, because it is not so great; whereas a very small error in the ton miles would be a very serious proposition. I don't know that I quite understood your question, Mr. Crawford.

Q. I will try to make it clear. Under the system of estimating by locomotive miles and not by ton miles hauled by the locomotives, is there any difference in what you pay for a large locomotive and for a small locomotive?—A. Oh, yes.

Q. There is a difference?—A. There is a difference. There is n a difference after I have made a contract.

Q. I mean to say, under one of these contracts, and assun ng t guaranty to remain the same, is it not a fact that you do y t same for a large locomotive that you do for a small one?—A. Yes, si

Q. And for a large car as for a small one?—A. Yes, sir.

Q. Nevertheless, does it not cost the oil company more to lubrica a large locomotive than a small one?—A. Yes, sir.

Q. Or a large car than a small one?—A. Yes, sir.

Q. Then it is, is it not, an advantage to the railroad to settle on t basis of car miles, assuming a constant guaranty?—A. Ye

7298 sir; we can increase our car tonnage under the contract, or ou engines, and still obtain the same cost of lubrication per engin on the car mile. You are quite right. I didn't understand you.

Q. Then, it is a substantial advantage to the railroad, is it not, t settle on the basis of car miles?—A. Yes, sir. I see your point.

By Mr. KELLOGG:

Q. They have succeeded in increasing your guaranty about as fas as your equipment, haven't they?—A. Sure; that is, as fast as th cost of the engine, but that doesn't cut any ice.

Q. The average cost for hauling freight per ton mile since 189 has increased, hasn't it?—A. Yes, sir; that is, on most roads; I gues probably every road.

Q. On your road it has?—A. Yes, sir.

Q. Do you know how much?—A. No, sir. The annual report i right there [indicating]. That which you have, Mr. Kellogg, wa dictated by me to my stenographer just before leaving Chicago. It is reasonably correct. I think there is an error in the last column.

Q. Well, you say that "on the expiration of this contract, a new contract was made, effective July 1, 1905, for five years, on the following guaranties," and then you name certain guaranties.—A. Yes, sir.

Q. "With the understanding that the locomotive costs for the year ending June 30th, 1905, were as below: A., T. & S. F., $2.81; Coast Lines, $3.37"——A. No; you have misread that. Let me ex- plain it.

7299 Q. I have read exactly what this says.—A. No; you haven't got it right.

Q. "With the understanding that the locomotive costs for the year ending June 30th, 1905, were as below"——

Mr. CRAWFORD. He has not so testified, Mr. Kellogg.

Mr. KELLOGG. Well, I am reading from this paper.

Mr. CRAWFORD. That is not in evidence, Mr. Kellogg.

Mr. KELLOGG. Well, it will be in evidence pretty soon.

Mr. CRAWFORD. All right.

Q. "A., T. & S. F., $2.81; Coast lines, $3.37; G., C. & S. F., $1.935. It being understood that if our actual cost in any one year of the contract was reduced below the above figures, the guaranty cost, first

above named, should be reduced by a similar amount."—A. That is the last contract; yes, sir.

Q. Now, I read that correctly from this statement, did I?—A. Yes; but I don't think you got the sense of it right. You didn't divide it right.

Q. I haven't stated what the sense of it was yet.—A. Well, your inference, then.

Q. Now, "with the understanding that the locomotive costs for the year ending June 30th, 1905, were as below." Are those figures correct below?—A. Yes, sir. There is where I think there is an error. That cost should have been the year ending June 30th—no, that is right; June 30th, 1905; that is right. This contract was made June 30th, 1905.

Q. Now, how were those costs arrived at?—A. In the usual manner.

Q. What is the usual manner?—A. Figuring up the total
7300 payments and dividing by the mileage.

Q. What payments do you mean?—A. I mean the total payments.

Q. Do you mean the ultimate payment arrived at at the end of the year by applying the guaranties or the monthly payments?—A. I mean the total monthly payments.

Q. Those monthly payments were payments made in advance, using the invoice price as the basis, weren't they?

Mr. ROSENTHAL. What is the use of going all over that again?

A. Those payments were made on the monthly balance; yes, sir.

Q. Using the invoice prices?—A. I didn't use the invoice prices. I simply put the monthly payments according to my vouchers.

Q. Well, now, Mr. Hodges——A. Well, now, Mr. Kellogg, will you kindly let me tell you how I have handled this thing?

Q. You don't mean that your monthly payment is the same thing as your ultimate payment, settled on the guaranties, do you?—A. No.

Q. The monthly payment is one thing, and your ultimate payment is another thing, isn't it?—A. Yes.

Q. The monthly payment is based on the invoice price, and the ultimate payment is based on the invoice price and the guaranty, isn't it?—A. The monthly payment is simply for a matter of convenience, possibly based on the invoice price.

Q. What's that?—A. The monthly payment is simply a matter of convenience. The total payment, as a matter of convenience, is based on the monthly price, perhaps; but it is an entirely
7301 different plan——

Q. Of course it is. You know there is no "perhaps" about it, don't you?—A. No, sir; I don't know that there is no perhaps about it.

Q. Of course you do.—A. I know that it is all straight. There are two different men handle that thing entirely. One man makes the vouchers, makes it from the invoice, and, if you please, he checks that invoice according to the invoice price.

Q. Yes, sir.—A. Yes, sir; and I make the voucher on that payment. When that comes down to my man he figures out this adjustment at the end of the year. He doesn't go through those invoices and check over the invoice price; he takes those vouchers. It is simply an advance payment, that is all.

Q. Oh, you can't befog anybody by that sort of thing.—A. I am not trying to befog. You are the one that is trying to befog.

A paper was marked "Petitioner's Exhibit 851."

Mr. KELLOGG. I offer petitioner's Exhibit 851 as a part of the cross-examination of Mr. Hodges.

Mr. ROSENTHAL. I understand this is offered by you as an exhibit?

Mr. KELLOGG. Yes.

Mr. ROSENTHAL. One of your exhibits; all right; no objection.

7302 WILLIAM O. TAYLOR, called as a witness on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. ROSENTHAL:

Q. What is your full name?—A. William O. Taylor.

Q. Where do you live?—A. Plainfield, New Jersey.

Q. What is your occupation?—A. Expert for the Galena-Signal Oil Company.

Q. For how many years?—A. About six years and a half.

Q. What was your occupation before that?—A. I was traveling engineer and road foreman of engines prior to that.

Q. Traveling engineer for what?—A. Traveling engineer on the Fitchburg Railroad, which was afterwards merged with the Boston & Maine. Prior to that, road foreman of engines for the Philadelphia & Reading.

Q. How long have you been in the railroad service?—A. Since the fall of 1875.

Q. On what different roads have you been employed?—A. Do you want that in its entirety?

Q. Well, I will hear you begin anyway and see how far along you can get.—A. After serving a year as a machinist apprentice in the Manchester Locomotive Works I engaged with the Old Colony Railroad as locomotive fireman and machinist apprentice in the fall of 1875. In May, 1878, I was promoted to locomotive engineer, and served as such until August, 1882. From August, 1882—

7303 Q. Don't go into details so much, Mr. Taylor. With what roads generally have you been connected?—A. The Northern Pacific; Burlington, Missouri River & Nebraska; Kansas City, Fort Scott & Gulf; Lake Shore & Michigan Southern; Boston & Lowell; Cincinnati, New Orleans & Texas Pacific; Texas Pacific; Mexican National, and the Chicago, Rock Island & Pacific.

Q. How many years were you a locomotive engineer?—A. About sixteen.

Q. When did you first begin using Galena oils?—A. The first knowledge I had of using Galena oils was when employed as road foreman on the Philadelphia & Reading Railroad. I have reasons

to believe that I was using it on some of the roads mentioned prior to that.

Q. What year was it that you began as a Galena expert?—A. 1901.

Q. What was the first road that you went to?—A. The Central New England, my first experience.

Q. And then what road?—A. Then to the Central Railway of New Jersey, Philadelphia & Reading.

Q. Were you ever on the Fitchburg Railroad?—A. I was employed there as a traveling engineer.

Q. When?—A. I went there in the fall of 1900.

Q. Did you have any occasion there to observe the work of the Galena experts?—A. I did.

Q. Please tell us about it.—A. The Galena oils were installed or introduced there about two months after I was employed, and
7304 there I first met the Galena representative assigned to that territory, and with him went over the system, upon the instructions of my superior officer, and gave him what assistance I could.

Q. With what result, so far as any improvement in lubrication was concerned?—A. The results were not shown immediately, other than that there was a noted improvement in the amounts consumed.

Q. Were you ever a Galena expert on the Central Railway of New Jersey?—A. Yes, sir; and am now.

Q. And how about the Cornwall & Lebanon Railroad?—A. That road—I was the first Galena representative there and am there yet.

Q. That is a small line?—A. That is a small road.

Q. And part of what system, do you know?—A. I don't know.

Q. Where does it run?—A. It runs from Lebanon, Pennsylvania, connecting with the Pennsylvania at Conewago, on the main line between Harrisburg and Philadelphia.

Q. You were the first Galena expert on that line?—A. Yes, sir.

Q. In what condition did you find the matter of lubrication when you came there and what did you do and with what result?—A. There had been very little attention paid to economies in the line of lubrication, and after our oil had been installed completely—there was a period of time when they were using up their old stock—after our oils were solely used, I made recommendations to the president and general manager as to a suitable allowance for the several
7305 engines on the runs. That was put in effect, with a result of decided economy.

Q. Have you any record of those economies?—A. Yes, I have records, but not in memory.

Q. Have you any memorandum of them?—A. I can say approximately.

Q. Do you remember the miles per pint performance?—A. The miles to the pint of valve oil for the first eight months, during a portion of which period they were using Galena oils, averaged about 55 to the pint of valve oil, and between 30 and 35 to the pint of engine oil. After the changes had been made——

Q. What changes?—A. The introduction of an oil schedule. The limiting of the amounts given to each engine for its individual run, the average was 99 and a fraction miles to the pint of valve oil, and 41, I think it was, to a pint of engine oil, approximately.

Q. So that with the introduction of Galena-Signal methods you increased the miles per pint from 55 to 99?—A. Yes, sir.

Q. And the miles per pint of engine oil from 30 to 35 to 41?—A. Yes, sir.

Q. Do you remember the average performance, so far as miles to the pint of valve oil is concerned, for the year following the making of the contract?—A. For the year following the making of the contract I have no figures; because a portion of that time other oils were being used. I didn't attempt to make any changes in their al-
7306 lowance for their engines during the time the other oils were used. I waited until such time as they had our product there in sole use.

Q. What other improvements, if any, did the introduction of Galena oils and Galena methods effect on that little road? Did it have any effect upon hot boxes?—A. I have no data on that. I have never seen any record of hot boxes on that road. I don't think they keep records of hot boxes.

Q. Have you observed, upon any roads on which you were an expert, the effect of the introduction of Galena methods and Galena lubrication in so far as the diminution of hot boxes is concerned?—A. Yes.

Q. What roads have you in mind?—A. In replying to that question I would have to refer to instances that have occurred during my experience, from the fact that I was not the first Galena representative on any of these roads, with the exception of those mentioned, and have not noted the improvement following the early introduction of the oils.

Q. Well, take the Philadelphia & Reading. Were you the first expert there?—A. I was not.

Q. Have you been an expert on that line?—A. I have been on the Philadelphia & Reading since 1902.

Q. How do the number of hot boxes now compare with the number when you were a locomotive engineer? Are there as many?—A. I should say not, but I speak purely from observation.

Q. That is all I expect you to speak from. From your observation are there as many?—A. There are not.

Cross-examination by Mr. KELLOGG:

Q. On this Cornwall & Lebanon road, you say there had not
7307 been very careful attention paid to the lubrication?—A. I would judge not, from what I——

Q. They were rather loose in their methods?—A. Yes, sir; I should judge so.

Q. Were they lubricating their own road when you went there, or was the Galena Company doing it?—A. They were lubricating their own road.

Q. You don't know where they were buying their stock?—A. I do not.

Q. Don't know anything about that?—A. I do not.

(The hearing was here adjourned until the morning of Wednesday, June 3, 1908, at 10.30 o'clock.)

7308 ROOM 722 CUSTOM-HOUSE, NEW YORK CITY,
Wednesday, June 3, 1908—10.30 a. m.

The hearing was resumed before the special examiner, Hon. Franklin Ferriss, at the above time and place.

Present: On behalf of the petitioner, Mr. Frank B. Kellogg, Mr. J. Harwood Graves; on behalf of the defendants, Mr. Moritz Rosenthal, Mr. Frank L. Crawford, Mr. W. Cleveland Runyon.

C. C. STEINBRENNER (recalled).

Direct examination by Mr. ROSENTHAL:

Q. You are the same C. C. Steinbrenner who has heretofore testified as a witness called for the Government?—A. I believe so.

Q. What is your position with the Galena-Signal Company?—A. Auditor of the railway department.

Q. What does that mean?—A. That means that I have charge of all accounts under our contracts with all street railways, steam railways, and other companies with which we may have contracts; make all adjustments; keep all accounts connected with the contracts.

Q. That is, you are the head of the accounting and contracting departments, so far as the office work is concerned?—A. Yes.

Q. And in that position have you become familiar with the history of the various contracts made by the Galena Company
7309 since your connection with that company?—A. Yes.

Q. What particular men connected with the Galena Company have to do with the obtaining of contracts from the railroads?—A. The president of the company, all of our salesmen, and myself.

Q. The president of the company is Mr. Charles Miller?—A. Yes, sir.

Q. Your principal offices are at Franklin?—A. At Franklin, Pennsylvania.

Q. What is there at Franklin?—A. We have our general office, and our main works are located at Franklin, Pennsylvania.

Q. What do your main works consist of?—A. The works consist of a plant for the purpose of manufacturing our Perfection valve and signal oils; Galena engine, coach, and car oils; our power-house oils and electric car oils; also greases for the lubrication.

Q. How many men are employed at the Franklin works?—A. I can hardly say definitely. I think there are two hundred.

Q. That is, at the works proper?—A. Yes.

Q. How many salesmen have you?—A. I should say, offhand, about twenty; that is, in the electric and steam railway trades, in this country.

Q. What do your salesmen do?—A. They travel about the country soliciting business, making contracts. I think that takes in about the scope of their duties.

Q. Are these twenty salesmen all that you have covering this country?—A. All in the sales department.

7310 Q. They call upon the various railroad officials and others with whom the Galena Company does business?—A. Yes, sir.

Q. Does Mr. Miller, the president of your company, also actively solicit business?—A. Yes.

Q. Is he very active in that direction?—A. Well, not as active as he used to be.

Q. Are you a member of the board of directors of the Galena-Signal Company?—A. No, sir.

Q. How long have you been connected with the company?—A. Since December, 1893.

Q. And always in the capacity of auditor?—A. Yes.

Q. Do I understand that you also make contracts?—A. Yes.

Q. Solicit them?—A. Make contracts, solicit them, and assist our salesmen in the final execution of the contracts, so far as figures might be concerned.

Q. What different kinds of oil are manufactured by the Galena-Signal Company?—A. We manufacture Sibley's Perfection valve oil——

Q. What is that used for?—A. That is for the lubrication of the valves and cylinders of steam locomotives.

Q. Is that your highest priced oil?—A. That is the highest priced oil we manufacture.

Q. What other oils do you manufacture?—A. We manufacture Galena engine oil——

Q. What is Galena engine oil used for?—A. That is used for the machinery of steam locomotives.

Q. And the Sibley Perfection valve oil and the Galena
7311 engine oil are the two kinds of oils that are used on the locomotives?—A. Yes.

Q. What other kinds?—A. We have Galena coach oil.

Q. What is that used for?—A. That is used for passenger train cars.

Q. Passenger car lubrication?—A. Yes, for passenger car lubrication.

Q. What other oils?—A. Galena car oil.

Q. What is that used for?—A. That is used on both passenger and freight car service; also on locomotives, in some instances. We manufacture Sibley's Perfection signal oil.

Q. What is that?—A. That is an oil used for hand lanterns and other signals, along the right of way, for steam railroads.

Q. What price is Sibley's signal oil sold at?—A. 36 cents a gallon, in barrels.

Q. That is not sold under any form of guaranty contract, is it?—A. No, sir.

Q. It is sold outright?—A. It is sold outright.

Q. How extensive a sale is there of that signal oil?—A. I think it runs possibly 150,000 barrels a year.

Q. What other oils do you manufacture?—A. We manufacture a Railway Safety oil that we put on the market within the last three or four years, for the purpose of these long-time signals that have recently been put in service on various lines. It is a burning oil, and it is used where they require a light to burn a great number of hours, with positive assurance that it will continue a steady light.

7312 Q. That is, it is used for signal purposes?—A. For signal purposes. That trade has not developed very greatly yet, because it is new.

Q. What priced oil is that?—A. That is 25 cents in barrels; 23 cents in bulk.

Q. That is an illuminating oil?—A. An illuminating oil.

Q. Of a superior quality?—A. Yes.

Q. What other oils do you manufacture?—A. We manufacture power-house valve oil for the lubrication of machinery in power houses; and that is sold at the same price as our Perfection valve oil.

Q. And that is what?—A. 48 cents in bulk. We manufacture a power-house engine oil which is sold at 30 cents a gallon in barrels. We manufacture an electric car oil for the lubrication of trolley cars. We manufacture a dynamo oil for the lubrication of dynamos in power houses. We also manufacture driving-journal compound for use in the lubrication of driving journals of steam locomotives, where such a grease is required. We also manufacture what is known as Galena rod-cup grease. We manufacture a motor grease or gear grease that is used in the lubrication of gears of motors under trolley cars. I think that covers about the entire list.

Q. Do your salesmen sell all of these various kinds of oil?—A. The salesmen in the steam railway department sell the steam railway oils, and the salesmen in the street railway department sell the street railway oils. It occasionally happens that our steam salesman also solicits street railway trade.

7313 Q. What particular kinds of oil do you sell to street railways?—A. We sell power-house valve oil, power-house engine oil, Galena electric car oil, motor and gear grease. In some instances they buy our Perfection signal oil; some buy our railway safety oil; some buy the dynamo oil in connection with power-house lubrication; some buy our motor and gear grease. I think that covers the list.

Q. How long has the Galena-Signal Company been engaged in the lubrication of street railways?—A. About five years ago we entered that field.

Q. Do you know how many salesmen you have engaged in that particular line of work?—A. I think there are seven.

Q. Have you any street railway business with street railways outside of the United States, or, so far, has your business been entirely confined to the United States?—A. No, sir, we are lubricating an

electric line in Cuba and in Porto Rico, if my memory serves me right. I think that is all the foreign street railway trade that we solicit at the present time.

Q. Do you make contracts with the street railways for lubrication?—Yes, sir.

Q. And are those contracts printed?—A. We have a standard form for that purpose.

Q. I show you Defendants' Exhibit 40. Please tell me what that is.—A. This is a copy of our contract with the Philadelphia Rapid Transit Company for the lubrication of their rolling equipment.

7314 Q. Is it a correct, accurate copy?—A. Yes, sir.

Q. And when was that made?—A. This was made on the 31st day of May, 1907, covering the year from June 1, 1907, to June 1, 1908.

Q. Has the company other contracts that it has made with other companies, similar in form to that?—A. Yes, sir.

Q. So that thoroughly illustrates one of your forms of street-railway contract?—A. Yes, sir. This is the form for lubrication where we have the cars only and not the power houses.

Mr. ROSENTHAL. I offer in evidence Defendants' Exhibit 40.

Q. Will you explain the general scheme of this contract, so that we may have it in the record?—A. That contract, first, covers the sale of the oil at our established prices for the different kinds of material.

Q. Does it provide for a sale of the oil to the street-car company at a given invoice price, in the first instance?—A. Yes, sir. That is then followed with a guaranteed cost, either based upon what they had been doing prior to our taking a contract with them, or on a flat figure based upon our experience on other surrounding lines or lines of similar character.

Q. Galena electric car oil, for car and motor journals, for example, in this contract, in paragraph 1, is priced at 20 cents per gallon?—A. Yes, sir.

Q. Is that the basis of the monthly settlement?—A. That is the basis of the monthly settlement.

Q. And I notice, in section 2, that the guaranty is that the

7315 cost shall not exceed 12.06 cents per 1,000 passenger-car miles run of such equipment. What does that mean?—A. That means that that contract was taken on that figure per 1,000 miles, which was 90 per cent of a cost that they had established with other lines, and that figure is the basis of final settlement at the end of the year.

Q. So that the final cost to the Philadelphia Rapid Transit Company, the contracting party in Defendants' Exhibit 40, is a cost of 12.06 cents per 1,000 miles?—A. Provided we exceed that figure. If we should be unable to meet, or fall below, that figure it might be less than that.

Q. That is to say, the maximum cost to the railroad——A. To the railroad is fixed at that price per 1,000 miles.

Q. And that, as I understand it, is entirely independent of the price per gallon named in section 1 of the contract?—A. I hardly catch the meaning of your question.

Q. Unless you fall below the guaranty?—A. Yes; unless we fall below. It must be taken in connection with the price per gallon, of course.

Q. That is to say, if the cost of lubricating the car and motor journals on that road exceed 12.06 cents per 1,000 passenger miles, in any event the railroad company would not have to pay to exceed——A. 12.06 cents, the guaranty.

Q. And it would only pay on that unit of service, namely, so much per 1,000 miles?—A. Yes, sir.

Q. So that the gallon price, as I understand this contract, is merely used to give you a basis for a monthly settlement?—
7316 A. Yes, sir.

Q. Does it serve any other purpose whatever, beyond that?—A. It serves the purpose of fixing the value of our oils.

Q. I mean in so far as cost to the railroads is concerned.—A. So far as accounting purposes are concerned, it does not.

Q. Or so far as cost to the railroad is concerned, does it serve any other purpose than to make it the basis for monthly settlements?—A. No, sir.

Q. Do you remember who negotiated this particular contract with the Philadelphia Rapid Transit Company?—A. Mr. Maize, the purchasing agent, and Mr. Lincoln, the assistant to the president or general manager—I have forgotten his title. It was, however, executed by Mr. Maize, the purchasing agent. I was present when that contract was made.

Q. Was this the first contract which the Galena Company had made with the Philadelphia Rapid Transit Company?—A. No, sir; that was the second.

Q. When was the first contract made?—A. The year prior to that.

Q. Did you have to do with the making of that contract?—A. I was not present when the first contract was made. I, however, made the adjustment under the first contract.

Q. What do you mean by that?—A. The final settlement under that contract. And at that time this contract was made.

Q. Prior to the making of the first contract with the Phila-
7317 delphia Company, who had lubricated its road?—A. I couldn't tell you. It was some outside concern, I understand.

Q. How did you arrive at the original guaranty in connection with the first contract?—A. By going over the costs of oils consumed during the twelve months prior to our first contract, and reducing it to the cost per 1,000-mile basis. Discounting that 10 per cent, we arrived at these figures and put them in the contract.

Q. That is to say, you first determined what it had cost the Philadelphia Rapid Transit to lubricate its system for the preceding year?—A. Yes.

Q. And you analyzed and studied the figures and data presented to you by the Philadelphia Company relating thereto?—A. Yes, sir.

Q. And by doing that you got at the actual cost on the 1,000-mile basis to the Philadelphia Company?—A. Yes, sir.

Q. Then, having determined what it had cost the Philadelphia Company, by that sort of an analysis, to lubricate its cars per 1,000 miles run, you offered to lubricate those same cars with your oils, for the next succeeding year, at 90 per cent of what it had theretofore cost the Philadelphia Company?—A. Yes, sir.

Q. Now, how did you get at the 12.06 cents guaranty? How did you get at that figure as the basis of the guaranty?—A. That represents 90 per cent of their previous cost. In other words, we took the previous cost per thousand miles and discounted it 10 per cent,
7318 which gave us this figure, and the figure was then inserted in the contract as the guaranty.

Q. And the gallon prices stated in the contract, are those your list prices?—A. Our fixed prices per gallon.

Q. Now, when do you say that first contract was made with the Philadelphia Company?—A. The first contract was effective from June 1, 1906, to 1907; it was then renewed on the same basis for the year June 1, 1907, to June 1, 1908.

Q. After getting the first contract with the Philadelphia Rapid Transit Company, what did you do so far as installing your lubrication on that line was concerned?—A. We shipped a supply from our Franklin plant to Philadelphia, and sent an expert there to install them; and that expert is still working with a view of giving them the best possible results from the use of our materials, and the most economical results.

Q. Have you, then, experts in connection with your street-car lubrication?—A. Yes, sir.

Q. How many experts have you engaged in that field?—A. I can hardly give the exact number now, because we are adding to the force all the time as our business grows. I think there are possibly twelve men at the present time, in that branch of the service.

Q. Generally speaking, what do your street-car experts have to do?—A. Our street-car experts go to the different lines to which they are assigned for duty. They inspect the equipment, either power houses or cars or both; instruct the employees of the railway
7319 company as to the proper use of our materials, with a view of securing the best results both from a service standpoint as well as from a standpoint of economy. They consult with the managers, superintendents, engineers, car repair men, and others having to do with the lubrication question.

Q. I wish you would explain so that it will be in the record, section 5 of this contract, in detail.

Mr. KELLOGG. That is objected to, because it is plain that the section shows for itself.

A. Section 5 provides that the railroad company will pay our invoices covering materials delivered to it, within sixty days of date

of the invoice, and an amount up to what the guaranty would amount to, based upon the miles run of the equipment as shown by the monthly statements which the railway company renders to us after the close of each month. This is continued throughout the year, and at the close of the contract year a final settlement is had under the guaranty clause. If the cost of oils consumed at the invoice prices exceeds the amount of the guaranteed cost, the oil company either authorizes the railroad company to deduct from the payments the amount of the excess, or renders a voucher in favor of the railroad company covering such excess, the railroad company in this event paying all invoices rendered against them for materials furnished during the year.

Q. Do you have any different forms of street-car contract than that shown by Exhibit 40?—A. We have forms covering the lubri-
7320 cation of power houses as well as cars. We have forms covering the lubrication of power houses without cars. We also have forms of contract providing for the sale of our materials without guaranties.

Q. I show you Defendants' Exhibit 41 and Defendants' Exhibit 42. Will you explain briefly how they differ from Defendants' Exhibit 40?—A. Exhibit 41 provides for the lubrication of cars as well as power houses of the Pittsburg Railways Company. The lubrication of the cars is on the basis of 30 cents per 1,000 miles run of the equipment, and the lubrication of machinery and power plants and substations is on the basis of 15 cents per 1,000 kilowatt hours' output for such plants. Exhibit 42 covers the lubrication of the cars and power houses of the Metropolitan Street Railway Company, of Kansas City, under a guaranty of 20 cents per 1,000 miles run of the rolling equipment, and of 12 cents per engine hour run or thousand kilowatt hours' output of the power plants. These two contracts are similar, in essentials, to Exhibit 40, excepting that it includes the lubrication of machinery in power houses.

Q. On the last page of Exhibit 42 I notice a heading "Oil cups to be leased at 25 cents." Will you please explain that?—A. We have a patented oil cup, which we lease to electric railway companies on the basis as stipulated in this sheet, provided they will adopt our method of using car oil in the lubrication of motor journals. Prior to our taking up this branch of lubrication it was the universal custom to use grease in the lubrication of motor journals. We discov-
ered that the grease was unsatisfactory in that there were
7321 many motors burned out, and the lubrication was not as satisfactory as it would be with the use of oil if properly applied. We secured the ownership of a patented cup, so that oil might be applied economically to the lubrication of motor journals, and put the cup in use on a lease basis at absolute cost to our company. This, however, is optional with the railway companies after our contracts are put in effect.

Q. Are you familiar with the work of your experts in connection with street-car lubrication?—A. In a general way.

Q. Can you tell us of any improvement in the methods of lubrication that have been introduced by your experts?—A. I could not.

Q. You are not familiar enough with that?—A. I am not sufficiently familiar. I know what has been discussed at our annual meetings, but further than that I couldn't say.

Q. Have you made up a list of the street railways that are now being lubricated by the Galena-Signal company under a guaranteed contract?—A. Yes, sir.

Q. I show you Defendants' Exhibit 43 and ask you whether that is such a list?—A. This is the list of contracts in existence at the time this statement was made up, giving the miles operated by each company and the number of cars operated by each company and the percentage of mileage as compared to the total mileage; also the percentage of cars as compared to the total cars in service.

7322 Q. I notice at the lower right-hand corner of Defendants' Exhibit 43 the statement, "Total mileage U. S. and Canada, estimated, 41,350." Does that mean 41,350 miles?—A. Mileage, yes; total mileage.

Q. Where did you get the figure 41,350 from?—A. That figure was obtained by taking the mileage as reported in the Street Railway Journal for 1906. The Street Railway Journal for 1907 had not yet been compiled or issued at the time this statement was made up; consequently, to arrive at the estimated mileage for the year 1907, we took the average increase in the mileage as reported in the Street Railway Journal for three or four years prior, averaging the increase and adding that average to the total mileage for 1906, so as to arrive at a proper comparison for the 1907 year.

Q. That is, you had the exact mileage for 1906?—A. Yes.

Q. And in order to get at the 1907 mileage you took the average of the preceding two or three years?—A. Yes.

Q. The average increase?—A. The average increase.

Q. And you added that average increase to the 1906 mileage?—A. Yes.

Q. So that, upon the assumption that the increase in 1907 was the average of the increase of the two or three preceding years, 41,350 correctly represents the total street car mileage in the United States and Canada for the year 1907?—A. Yes.

Q. How much street car mileage was the Galena Company lubricating in the year 1907?—A. 10,974, under guaranteed contract.

7323 Q. In addition to lubricating street car systems under guaranteed contracts, were you lubricating by any other means?—A. We have some that are buying our oils without contract, and some buying under contract without guaranty.

Q. So that under guaranteed contracts you were lubricating in 1907 26.7 per cent of all the street car mileage in the United States and Canada?—A. Yes, sir.

Q. Have you made any estimate of the street car mileage lubricated by the Galena Company otherwise than under guaranteed contract?—A. Yes, sir.

Q. Have you those figures?—A. There is a statement furnished covering that part of the business.

Q. Please produce that statement, and have it marked Defendants' Exhibit 44.

(The statement was so marked.)

Q. You hold that statement in your hand now, do you?—A. Yes, sir.

Q. What is the total number of miles lubricated by the Galena Oil Company under contracts or arrangements other than guaranteed contracts?—A. 1,024 miles.

Q. What percentage of the total mileage is that?—A. 2.4 per cent.

Q. So that if you add 2.4 per cent to 26.7 per cent you get the total street car mileage lubricated by the Galena Company in the United States and Canada under all forms of contract?—A. Yes, sir.

7324 Q. That makes a total of 29.1 per cent, does it not?—A. 29.1 per cent; yes.

Q. That is to say, the Galena Company lubricates 29.1 per cent of all of the street car mileage of the United States and Canada?—A. Yes, sir.

Q. And it has been how long in building up that business?—A. About five years.

Q. Have you any figures showing the total number of street cars in operation on the street car systems of the United States and Canada?—A. Yes, sir.

Q. In what exhibit is that shown?—A. In Exhibits 43 and 44.

Q. Well, let's take Exhibit 43. I find at the lower right-hand corner, "Total number of cars, United States and Canada, estimated, 93,200." Where did you get that figure?—A. We got that figure from the same source and in the same manner that the mileage was computed.

7325 Q. And that shows the total number of cars in the United States and Canada, figured in that way, as being 93,200?—A. Yes, sir.

Q. What was the total number of street cars that in the year 1907 were being lubricated by the Galena Company?—A. Under guaranteed contracts, 31,559 cars, or 35 per cent of the total.

Q. Outside of the guaranteed contract, how many cars in addition to the 31,559?—A. Under gallonage contracts there were 1,072.

Q. Or 1.1 per cent?—A. 1.1 per cent.

Q. So that the total number of cars lubricated by the Galena Company in the United States and Canada in the year 1907 was 32,631?—A. Yes, sir.

Q. And the total number of street cars lubricated by the Galena Company in the United States and Canada in the year 1907 was 35 per cent of the total cars operated on all street car lines in the United States and Canada?—A. Yes, sir.

Q. How many street car lines does the Galena-Signal lubricate in the United States and Canada?—A. I have never totaled it. I think something like 200.

Q. I wish you would total it now so that we will have it in the record.—A. 151.

Q. So that you are lubricating 151 street car systems in the United States and Canada?—A. Yes, sir.

Q. Will you give us the names of some of the most important street car systems, taking into consideration mileage and number of cars operated, that you are lubricating?—A. The Aurora, Elgin & Chicago——

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Q. What is that?—A. Which includes the Cook County and cities of Elgin and Aurora railways, with offices at Wheaton, Illinois. They operate 158 miles of road and 115 cars.

Q. What is that—a third-rail line?—A. That is a third-rail line, high-speed line.

Q. It is a high-speed interurban railway, is it not?—A. Yes, sir.

Q. It runs between a number of different cities within a radius of 50 or 60 miles of Chicago?—A. I think so, yes. Then the Birmingham Railway & Light Company is next in size, 127 miles, 226 cars, with offices at Birmingham, Alabama, and it covers the city as well as suburban lines out of Birmingham.

Q. Is there any relation, so far as ownership is concerned, between the Aurora, Elgin & Chicago and the Birmingham Railway & Light Company?—A. None whatever, so far as I know.

Q. What is that—a trolley line—the Birmingham Railway & Light Company?—A. I assume so; I have never been down there to see it.

Q. The next large system that you have is the Boston——A. The Boston Elevated Railway.

Q. What is that?—A. That covers the elevated railway in Boston, Massachusetts, and, I believe, the subway of Boston.

Q. And how many miles are there in that system?—A. They operate 457 miles, 3,313 cars.

7327

Q. That compares, so far as size is concerned, fairly well with a small-sized steam railway, doesn't it?—A. Yes, sir.

Q. What is your next large system?—A. Columbus Railway & Light Company system, of Columbus, Ohio, 123 miles, 374 cars. It is the trolley lines in Columbus, Ohio, and, I suppose, suburban service.

Q. What are the Consolidated Railways of New Haven, Connecticut?—A. The Consolidated Railways of New Haven, Connecticut, cover all of the various electric lines.

Q. In that territory?—A. In that territory.

Q. And how many miles?—A. They operate 632 miles, 1,524 cars.

Q. Do you know how long you have lubricated that system?—A. We have been lubricating that system, I think, for three years.

Q. How long have you been lubricating the Boston Elevated Railway system?—A. I think about the same length of time.

Q. What is the Georgia Railway & Electric Company? Is that located at Atlanta, Georgia?—A. Atlanta, Georgia.

Q. How many miles and how many cars?—A. They operate 155 miles and 220 cars. That is, the line in Atlanta, Georgia, and suburban service.

Q. What is the Illinois Traction Company?—A. The Illinois Traction Company covers what is usually known as the McKinley syndicate of lines in Illinois and Indiana.

Q. With headquarters at Champaign, Illinois?—A. With headquarters at Champaign, Illinois.

7328 Q. They operate how many miles?—A. 500 miles, 200 cars; it is mostly suburban cars.

Q. Interurban cross-country?—A. Interurban service.

Q. And what is the Indiana Union Traction Company?—A. That is a line operating between Anderson, Indiana, and Indianapolis and Muncie and other adjacent cities.

Q. How many miles and how many cars?—A. They have 366 miles and 266 cars.

Q. Do you lubricate any street railroads at Buffalo, New York?—A. We have the Buffalo Street Railway Company; that is known as the International Railways Company.

Q. That is the street railway system of Buffalo, New York, is it?—A. Yes, sir.

Q. And how many miles does that road operate?—A. They have 358 miles and 1,062 cars.

Q. Do you lubricate any company in New York City?—A. We lubricate the Interborough Rapid Transit lines, including the elevated and the subway cars; we also lubricate some of the surface lines in New York, I think all of them.

Q. Do you lubricate the Interborough Rapid Transit lines?—A. Yes, sir.

Q. Does that include the subway?—A. That includes the subway.

Q. And what is the total mileage there?—A. 139 miles, 1,544 cars.

7329 Q. How long have you lubricated that system?—A. We have lubricated it ever since it became an electric line.

Q. Do you also lubricate the New York City Railway lines?—A. Yes, sir.

Q. How many miles are there in those lines?—A. 312 miles, 3,597 cars.

Q. Does that comprise the surface lines of the city?—A. Yes, sir.

Q. Not including Brooklyn?—A. Not including Brooklyn.

Q. Do you lubricate the lines of the Brooklyn Rapid Transit Company, known as the Transit Development Company?—A. Yes, sir.

Q. What does that comprise?—A. That covers the elevated and surface lines in Brooklyn.

Q. Consisting of how many miles?—A. 557 miles and 3,509 cars.

Q. How long have you lubricated that system?—A. For about four years, if I remember correctly.

Q. And how long have you lubricated the New York City railways?—A. Since about a year ago.

Q. Are you lubricating the New York and Brooklyn lines, elevated and surface, under contract?—A. Yes, sir.

Q. Under what form of contract?—A. Guaranteed contract.

Q. That takes in, does it not, practically the entire elevated, surface, and subway street-car systems in New York and Brooklyn?—A. Yes, sir.

Q. All of which the Galena Company lubricates under its guaranteed contract?—A. Yes, sir.

7330 Q. Do you also lubricate the Los Angeles Pacific Railway Company?—A. Yes, sir.

Q. How many miles are there in that system?—A. 250, with 307 cars.

Q. And the New England Investment & Security Company, Boston, Massachusetts?—A. We lubricate them.

Q. What is that?—A. I can hardly tell you from memory as to the lines it operates, but I believe those are the lines owned and controlled by the New Haven Railroad Company.

Q. The electric lines in and around Boston?—A. Yes, sir.

Q. They have a mileage of how much?—A. 533 miles, with 502 cars.

Q. Do you lubricate any street-car lines in the city of Philadelphia?—A. We have the Philadelphia Rapid Transit.

Q. What is that?—A. That covers the surface, elevated, and subway lines of the Philadelphia Rapid Transit Company.

Q. That takes in practically the entire street-car system of the city of Philadelphia, doesn't it?—A. Yes, sir.

Q. Consisting of how many miles and how many cars?—A. 613 miles, 3,817 cars.

Q. And do you lubricate any street railways in the city of Pittsburg, Pennsylvania?—A. We have under contract the Pittsburg Railways Company lines.

Q. What does that consist of?—A. It covers all of the surface lines, trolley lines, in and around Pittsburg city.

7331 Q. Operating how many miles and how many cars?—A. 516 miles, 1,820 cars.

Q. Do you lubricate any lines in Camden and Trenton, New Jersey?—A. We lubricate the Public Service Corporation lines, which cover, I think, all of the lines in the State of New Jersey.

Q. All of the street-car lines?—A. All of the street-car lines in the State of New Jersey owned by the Public Service Corporation.

Q. Having a mileage of how much?—A. 663 miles, 2,337 cars.

Mr. ROSENTHAL. I offer Defendants' Exhibit 43 in evidence, also Defendants' Exhibit 44.

Q. In the development of street-car lubrication during the past five years, have you found any differences on the different lines, so far as the lubricating proposition is concerned?—A. Yes, sir.

Q. Will you tell us what you have discovered in that regard?—A. The power-house machinery might be of a different character, the cars might be of different character and size, thus resulting in varying cost per 1,000 miles or per 1,000 kilowatt hours.

Q. Let us take the power houses first. That is one of the problems that has confronted you in the lubrication of street-car lines?—A. Yes, sir.

Q. It is true, is it not, that you find all kinds of electrical equipment in the different power houses of these different street-car lines?—A. Yes, sir.

7332 Q. Some of which have been operated for a great many years and some of which have been operated only a very short time?—A. Exactly.

Q. That gives you the most modern of the electrical equipment in power houses and some equipment that is——A. Antiquated.

Q. That is antiquated?—A. Yes.

Q. What problem does that present to you so far as lubrication is concerned?—A. From what standpoint, Mr. Rosenthal?

Q. Well, are there different elements that enter into the matter of lubricating these different kinds of power houses?—A. Very much so.

Q. By reason of what?—A. By reason of the lack of facilities, by reason of the men not being acquainted with modern methods of lubrication, the economical use of oils, different kinds of machinery to be studied, necessities to be developed.

Q. Now, who does that before the contract is made, as representing the Galena Company?—A. The salesman, in connection with our experts.

Q. And what do you find, or what have you found, with respect to the differing character of equipment of the different street railways of the country so far as the lubricating problem is concerned?—A. The conditions vary with almost every road; there are hardly two roads alike in so far as equipment is concerned.

Q. That is, both as to rolling stock and character of rails?—A. Well, hardly character of rails. Rolling stock, kinds of motors under the cars, the different machinery in power plants.

7333 Q. What different kinds of cars are there that enter into the lubrication question?—A. There is the small car having but four wheels, the large car having eight wheels, with two motors or four motors, different kinds of motors, manufactured by different concerns, such as the Westinghouse Electric Company, the General Electric Company; the character of the motors are different, necessitating different methods of lubrication.

Q. All of which have to be studied by your experts——A. Yes, sir.

Q. In connection with the making and the working out of the contracts?—A. Of these contracts.

Q. And do all of those elements that you have mentioned affect the cost of lubrication?—A. They do, most decidedly.

Q. Now, have you therefore found any wide differences in the cost of street-car lubrication at the times when you have entered into these various contracts?—A. The cost, both as to the lubrication of power houses, differs greatly; it also differs as to the cost per 1,000 miles for lubrication of rolling equipment. There are hardly two roads alike in equipment or as to the cost of lubrication.

Q. That being so, Mr. Steinbrenner, where you take these street-car lines, as you do, on the basis of 90 per cent of their previous cost, it necessarily follows that the ultimate cost to these different street-car companies differs radically, does it not?—A. Yes.

Q. And is that the reason for the existence of the differences in lubrication cost?—A. Exactly.

7334 Q. Did I understand you to say that practically all of your street car contracts were made upon the basis of a certain percentage of prior cost to the railway companies?—A. Yes, sir; the majority of them have been taken that way.

Q. And those of your contracts that were made in that way, how were they made?—A. Some of them were made on a basis of a flat guaranty, arrived at by our salesmen and experts possibly going over the road, looking over the conditions, and estimating what it ought to cost to lubricate the equipment; others may have been taken on a basis of previous cost, but the figure not known to the home office; the figures simply put in the contract and arrived at by our salesman when he was negotiating the contract.

Q. Where you had no previous cost figures to rely upon, how did you then get at the cost basis for your contract?—A. It may have been taken, as I say, by our salesman in connection with an expert having gone over the line and arriving at an estimate of what it ought to cost, in their judgment, to lubricate the road, and offering a flat guaranteed rate. Again, it may have been based upon our experience on similar properties surrounding that line or in other parts of the country where the equipment might be similar.

Q. Nine-tenths of your contracts are on the basis of the guaranteed cost, are they not?—A. Yes; at least I think that is the proportion.

Q. Now, besides these elements that you have already mentioned, are there any elements relating to the character of the

7335 country through which the cars run that enter into the question of lubrication?—A. I couldn't say as to that; I have never talked to our experts about that, whether that would affect the cost or not.

Q. I presume the interurban street car lines that run through a sandy country might cost more to lubricate than one that ran through a different kind of country?—A. That is quite reasonable; yes.

(A recess was here taken until 2 o'clock p. m.)

Q. I show you Defendants' Exhibit 45. Will you please explain what that is?—A. Exhibit 45 covers a list of street railways under guaranteed contract, the basis of the guaranteed cost, and the guaranteed cost per 1,000 miles for our lubrication and the guaranteed cost per 1,000 kilowatt hours for powerhouse lubrication.

Q. Take your first column, the basis of the guaranteed cost. I find opposite the first railroad there, Angola Railway & Power Company, Angola, Indiana, 90 per cent. What does that mean?—A. That means that that contract or a contract with that company was taken on a basis of 90 per cent of the cost that they had established prior to our contract.

Q. And when you get down to the Butler Passenger Railway, Butler, Pennsylvania, basis of guaranteed cost 100 per cent, that means that you contracted to take that road on the same basis as it had theretofore cost the Butler Passenger Railroad?—A. Yes, sir.

7336 Q. Now take that Butler Passenger Railway, in the next column, opposite the 100 per cent, under the head of "Miles cars," I find 15. What does that mean?—A. That is the guaranteed rate per 1,000 car miles for the lubrication of its rolling equipment.

Q. That is the same sort of a proposition that you have with your railroad contracts?—A. Yes, sir.

Q. You guaranteed to lubricate at a cost of 15 cents per 1,000 miles?—A. Yes, sir.

Q. Now, "K. W. H. power houses." What does "K. W. H." stand for? That is the top of the last column.—A. "K. W. H." means kilowatt hours of power produced.

Q. Opposite Bay City Traction & Electric Company, I find under the head of kilowatt hours power houses, .1730.88. What does that mean?—A. That isn't opposite the Bay City Traction & Electric Company. It is opposite the Beaver Valley Traction Company.

Q. What does that mean?—A. That means that the lubrication of machinery in power houses shall not exceed .1730.88 per 1,000 kilowatt hours of power produced.

Q. What is a kilowatt hour?—A. That is an electrical term for measuring the electrical power produced by the dynamos, as nearly as I can describe it.

Q. Opposite the item Atlantic Coast City & Suburban Traction Company, I find, under the column "K. W. H. power houses," ".0225 engine hour." What does that mean?—A. That is based upon the engine hours' run. In that case they do not have a registering device for registering the kilowatt hours; consequently, we take that on the basis of engine hours run. For instance, an engine is run 24 hours out of the 24 hours, it means 24 hours' run for that engine.

Q. Then, you mean that the charge there is .0225 for each engine hour?—A. For each engine hour that the engines are in operation.

7337 Q. Now, I find from an examination of Defendants' Exhibit 45, a very wide variation in the cost of lubrication per 1,000 miles of—street-car mileage, isn't it?—A. Yes, sir.

Q. Will you explain how that comes about?—A. The costs vary on different lines, due to the class of equipment; due to the class of oil that they may have used prior to our original contract; due possibly to the personnel of the road; due to different conditions or facilities for handling oils and applying them to the cars.

Q. Here is a street railway, for example, at Helena, Montana, that pays 58.28 cents per 1,000 miles, whereas a street railway at Atlantic City seems to pay only 14 cents per 1,000 miles of lubrication. How do you explain that difference in the cost of lubrication per 1,000 miles to the street car company?—A. That is entirely due to the dif-

ference in conditions existing on the two roads mentioned at the time we took the contract.

Q. You find, then, do you not, Mr. Steinbrenner, with respect to street-car lubrication, that there is a much wider variation in the cost of lubrication per 1,000 car miles than there is in the cost of lubrication per 1,000 car miles on the different steam railroads of the country from whom you have contracts?—A. Very much so.

Q. And that wide difference in the cost of car mileage comes about in just precisely the same way on the street-car lines as it does on the steam railroads, does it not?—A. Entirely due to the local conditions on the road.

7338 Q. Is the difference that appears in the cost of the street-car mileage and the steam-railroad mileage an arbitrary difference made by the Galena-Signal Company when it gets these contracts, or is there some other reason for the difference?—A. It certainly is not due to any arbitrary difference. The difference is brought about entirely by the different conditions, the method of using the oil, the degree of economy that had been practiced prior or up to the time we took our contract, the difference in equipment.

Q. All those things that you have told us of, then, enter into the establishment of this differentiation in cost per 1,000 miles, as indicated by this exhibit?—A. Exactly.

Q. And the whole proposition is summed up in the statement that that cost per 1,000 miles is based upon either 90 per cent or 100 per cent of the previous cost?—A. Yes, sir.

Q. Previous cost to the railroad company before the Galena had anything to do with the contract?—A. Yes, sir.

Q. That is to say, a railroad company at Helena, Montana, before the Galena-Signal Company took the contract to lubricate that street railway line, cost the Helena company some sixty-odd cents per 1,000 miles to lubricate?—A. Yes, sir.

Q. And when you went to that company you agreed to lubricate that road for 90 per cent per 1,000 miles of what it had theretofore been costing it?—A. Yes, sir.

Q. And therefore you took that contract for 10 per cent less, bringing it down to 58.23 cents per 1,000 miles?—A. That is it.

7339 Q. Which was 10 per cent less than it theretofore cost the Helena company to lubricate?—A. Yes.

Q. Now, you went to the Interborough Rapid Transit Company, of New York City, the Manhattan Division, and you found from an examination of that system that it had been costing the Interborough road about 16 cents per 1,000 miles for its lubrication?—A. Yes, sir.

Q. As against 60-odd cents that it had been costing the Helena company?—A. Yes, sir.

Q. And you thereupon contracted with the Interborough to lubricate its system for 95 per cent of what it had theretofore cost it, or a guaranteed cost of 15 cents per 1,000 miles?—A. Yes, sir.

Q. That wide difference, therefore, between the 15 cents per 1,000 miles that you get from the Interborough road here in New York

City and the 58 cents per 1,000 miles that you get from the street railroad at Helena, is entirely due to the lubricating conditions that had been created by those railroad companies before you contracted with them, and which you found in existence when you made your contract?—A. Yes, sir.

Q. And that same explanation holds good with respect to all of these other 150-odd street railways that are shown on this exhibit?—A. Yes.

Q. Now, I presume that you also found, in making these contracts, that same wide variation in the cost of lubricating the power houses, did you not?—A. Exactly.

7340 Q. Because the variation seems to run from 2¼ cents, in some instances, up to 35 and 40 cents in other instances.—A. Yes, sir.

Q. That means, I take it, that one company had been lubricating its power house for about one-twentieth the cost that another company had?—A. Yes.

Q. And in each of those instances you contracted to lubricate for 90 per cent of what it had theretofore been costing that company?—A. 90 or 100 per cent.

Q. As the case might be?—A. Yes, sir.

Q. And, therefore, under your contract you would have the same proportional wide variation in price which you received from those respective companies; is that not so?—A. Yes, sir; that is right.

Q. Now, I find on Exhibit 45, opposite Rochester Railway & Light Company, in the third column, under the head of Kilowatt Hours of Power, ".15 steam" and ".02 water." What does that mean?—A. That means that the power produced by steam engine is based upon 15 cents per 1,000 kilowatt hours, and the electrical power produced by water power; that is, power driven by water, is on the basis of 2 cents per 1,000 kilowatt hours.

Q. Exhibit 45 then contains a list of all of the street railway companies by name, alphabetically arranged, that the Galena-Signal is now lubricating, does it?—A. That they were lubricating at the time this statement was made, which was within the last month or

7341 so. Some contracts have been received since that do not appear in this statement.

Q. And that is an accurate statement of just what it purports to be, is it?—A. Yes, sir.

Mr. ROSENTHAL. I offer Defendants' Exhibit 45 in evidence.

Mr. KELLOGG. It is objected to as incompetent, irrelevant, and immaterial.

Q. Defendants' Exhibit 43, under the head of "Name of road," shows what?—A. Exhibit 43 shows a list of railways under guaranteed contract, the location of those roads, the miles operated by each, and the number of cars operated by each.

Q. For what period of time?—A. That was for the year 1907.

Q. And does it accurately represent what it purports to represent?—A. Exactly.

Mr. ROSENTHAL. I offer Defendants' Exhibit 43 in evidence.

Mr. KELLOGG. Same objection.

Q. Defendants' Exhibit 44 is what?—A. Exhibit 44 covers a list of electric railways that are using Galena oils, either without a contract or under contract without a guaranty.

Q. That is, a list of roads that buy the oil on the gallonage basis?—A. On the gallonage basis. And it shows the miles operated by each line and the number of cars operated by each line.

Q. And it contains a correct list, and those figures are correct and accurate, are they?—A. Yes, sir.

Q. How many street railroads are there that you sell oil to on a gallonage basis, as shown by Defendants' Exhibit 44?—A. 29.

7342 Mr. ROSENTHAL. I offer defendants' Exhibit 44 in evidence.

Mr. KELLOGG. Same objection.

Q. Does the Galena Company sell any oil to the United States Government?—A. Yes, sir.

Q. Where?—A. Sandy Hook Proving Grounds; also to the Panama Railroad and Panama Canal Commission.

Q. How long has the Galena Company been selling oils to the Panama Railroad and the Panama Canal people?—A. Several years.

Q. Since 1902, has it not?—A. Yes, sir, I think that is the date.

Q. Have you prepared a statement showing year by year the number of gallons and the price at which the Galena Company has sold oil to the Government for use on the Panama Railroad and to the Panama Canal Commission?—A. Yes, sir.

Q. I show you defendants' Exhibit 46. Please state what that is.—A. Exhibit 46 shows the amount of each kind of oil which the Galena Company has sold to the Panama Railroad and the Panama Canal Commission, beginning with the year 1902, up to April 30, 1908. Do you wish me to show the different years and the amounts?

Q. Yes, sir, if you please.—A. In 1902 we sold to the railroad or Panama Canal Commission signal oil amounting to $17; in 1903, signal oil amounting to $51; in 1904, signal oil amounting to $204; in 1905, signal oil amounting to $340. In 1906 we sold them of car oil 8,642½ gallons, value $1,555.65; of engine oil 3,307 gallons, value $725.96——

7343 Q. Just summarize them by years.—A. Then, for 1906 (you can cut out those items), car, engine, valve, and signal oils and grease amounting to $4,843.78; in 1907, the different kinds of oil, amounting to $9,260.61; 1908, from January 1 to April 30, $4,311.49. To the Isthmian Canal Commission, for 1907, $36,421.35, and to the Isthmian Canal Commission from January 1, 1908, to April 30, 1908, $22,808.46. This oil is all sold at our full gallon price f. o. b. New York.

Q. So that in 1907 you sold the Canal Commission $36,421.35 worth of oil?—A. Yes, sir.

Q. And in 1908, $22,808.46 worth of oil?—A. That is for the first four months of 1908.

Q. For the first four months of 1908?—A. Yes, sir.

Q. Now, in connection with the sale of the oils to the Isthmian Canal Commission, have you ever seen the original or similar copies of defendants' Exhibit 47?

Mr. ROSENTHAL. Defendants' Exhibit 47 only purports, Mr. Kellogg, to be a copy of certain vouchers which are now in the possession of the Government. If there is any objection upon the ground that this is merely secondary evidence, of course I will produce the Government official and the document from the Government archives. But there is no objection upon the ground that it is secondary evidence?

Mr. KELLOGG. Not the slightest.

Q. What is defendants' Exhibit 47, Mr. Steinbrenner?—A. That is a copy of a voucher in payment of oils furnished the Commission.

7344 Q. A copy of a voucher that the Galena Company sign as a receipt for oils, furnished by the Commission?—A. A copy of a voucher for payment of oils furnished, and these vouchers, in passing through, are returned to the Government. We cannot hold them. It is a part of their system. We simply made a copy as one of them passed through our offices.

Q. Who prepares the voucher?—A. They are prepared by the Government.

Q. And sent to you for execution by the Government?—A. Yes, sir.

Q. And then returned by you to the Government?—A. To the Government.

Q. So that the original of that is now in the possession of the Government?—A. I presume so.

Q. You have nothing to do with the preparation of that voucher or the language therein contained?—A. No, sir.

Q. Or no one in your company?—A. No, sir.

Q. That emanates from the Government?—A. From the Government.

Q. Both as to its form and as to the language used?—A. Exactly.

Mr. ROSENTHAL. I offer defendants' Exhibit 47 in evidence.

Mr. KELLOGG. That is objected to as irrelevant and immaterial.

Q. On page 3 of defendants' Exhibit 47, being a copy of this voucher, I find the following: "Methods of purchase of supplies and engagement of service," and under paragraph 5 of that heading

7345 I find the following language: "Without advertising and upon noncompetitive quotations, it being impracticable to secure competition, because Galena oils are certified by the officials on the Isthmus as the only oils that will meet the requirements of the service and manufactured only by the Galena-Signal Oil Co." Whose language is that?—A. That is the Government's language on, I think, the reverse side of the voucher.

Q. That means, as I read it, that the Government officials on the Isthmus have eliminated competition in respect to the purchase of oils, because they certify that there is no other lubricating oil that

efficiently performs the work required there on the Isthmus except the Galena oils. Is that right?—A. Yes, sir; that is what it says.

Q. And is that oil that is sent to the Isthmus used for lubrication of the Panama Railroad?—A. Yes, sir.

Q. And is it used for any other purpose?—A. I couldn't say as to that. It is, presumably, used on the locomotives and cars of the railroad.

Q. And the Isthmus Canal machinery?—A. Machinery.

Q. And does that same language appear upon every voucher that comes in connection with the Isthmian Canal contract?—A. Every one that I have seen.

Q. What is the Sandy Hook Proving Grounds; do you know?—A. I don't know that I can tell. I presume that is the Government army station.

Q. Has this matter of street car lubrication been one of
7346 gradual growth?—A. Yes, sir; and it is growing right along.

Q. Been improving year by year?—A. Yes, sir.

Q. Now, have you examined the records of the Galena-Signal Company with a view to ascertaining when their first guaranty contract was made with a steam railroad company?—A. Yes, sir.

Q. And what have you ascertained in that connection?—A. As nearly as I could determine, the first contract was taken some thirty years ago.

Q. What records have you there that you have examined?—A. We have records of correspondence, we have statements from railroads, and our regular records which we keep under our guaranteed contract.

Q. And they are in your offices now at Franklin?—A. Yes, sir.

Q. And the Government is at liberty to examine any letters or papers or vouchers that you examined in ascertaining this data?—A. Yes.

Mr. ROSENTHAL. That offer stands open, Mr. Kellogg, if you wish to avail yourselves of it.

Mr. KELLOGG. What data is that?

Mr. ROSENTHAL. Any data that may be in the offices of the Galena Company from which statements have been prepared that Mr. Steinbrenner will introduce, or anything by the way of conclusions, in the way of historical data concerning which he may testify.

Q. You say those records show that the first guaranty contract was entered into about thirty years ago?—A. About thirty years ago.

7347 Q. Do you remember with what railroad that was?—A. I think it was the Milwaukee road, or the Rock Island; I am not sure which.

Q. Probably the Rock Island?—A. Yes.

Q. What was the system in the beginning, Mr. Steinbrenner, that was used by the Galena Company in getting contracts for lubrication from these steam railroad companies?—A. You mean as to the guaranties?

Q. What was their method of getting the business, in the first instance?—A. Their method of getting the business was to solicit it on a basis of 90 or 100 per cent of their previous cost on a mileage basis.

Mr. KELLOGG. Now, do you know this? Were you with them at this time?

WITNESS. No, sir; I was not.

Mr. KELLOGG. I object to testimony relating to something that you don't know anything about.

WITNESS. I have come to that conclusion from records which I have seen.

Mr. KELLOGG. That is objected to as incompetent and immaterial. Mr. Miller, the president of the company, is here, and he can testify to those things.

7348 Q. What records have you examined in that regard?—A. I have examined correspondence; I have examined contracts; I have examined statements made to us at that time by the railroads; also book records.

Q. Have you a memorandum which you have prepared which shows the historical development of these various contracts with the steam railroads?—A. Yes, sir.

Q. I direct your attention, first, to the Atlantic Coast Line. When was the contract first entered into between the Atlantic Coast Line and the Galena-Signal Oil Company?—A. The first contract was made for twelve months from November 1, 1895.

Mr. KELLOGG. I want to know whether the witness is testifying now from his own knowledge or from records which he has examined in the office of the Galena Company.

WITNESS. From my own knowledge in this case.

Mr. KELLOGG. Where you don't, I wish you would please specify, so I can object.

Q. When was the first contract made?—A. It was made at or just before November 1, 1895.

Q. Prior to the first contract made with the Atlantic Coast Line, November 1, 1905, how had the Atlantic Coast Line been lubricated?

Mr. KELLOGG. Do you know that of your own knowledge?

WITNESS. I know they were using other oils; that is all I know.

7349 Q. Had the Galena Company been lubricating that line?—A. Not prior to this date.

Q. Not prior to November 1, 1895?—A. Not prior to November 1, 1895.

Q. How was that first contract obtained and made with the Atlantic Coast Line?—A. That first contract was obtained on the basis of 90 per cent of their previous cost. The figures were arrived at prior to the execution of the contract, and entered in the contract.

Q. How long a period did that contract cover?—A. That was for a period of twelve months.

Q. You say it was made upon the basis of 90 per cent of the previous cost. Do you mean by that that in your first contract with

the Atlantic Coast Line you guaranteed to lubricate that road for 90 per cent of what it had theretofore cost the road itself to lubricate itself?—A. Yes, sir.

Mr. KELLOGG. Is that in the contract?

WITNESS. No, sir; it is not specified in the contract.

Q. What is not specified in the contract?—A. That these guaranties were 90 per cent of the previous cost; that is not specified in the original contract.

Q. But, as a matter of fact, what was the basis, so far as guaranty is concerned, upon which that Atlantic Coast Line contract was made?—A. Based upon 90 per cent of the previous cost that they had established.

Q. As you have explained?—A. Yes.

7350 Q. How did you arrive at the figures $2.25, 22½, and 12½, under the columns, respectively, "Locomotive," "Passenger car," and "Freight car?"—A. Those figures are specified in the contract, and represent 90 per cent of the previous cost per thousand miles that it cost the railroad to lubricate its equipment prior to that date.

Q. In your contract of November 1, 1895, then, it was provided that the Galena Company would lubricate the locomotives of the Atlantic Coast Line for $2.25 per 1,000 locomotive miles?—A. Yes, sir.

Q. You got that $2.25 how?—A. By taking the cost which they had produced and discounting it 10 per cent. In other words, $2.25 is 90 per cent of the cost which it had cost the railroad prior to that date.

Q. To lubricate its locomotives 1,000 miles?—A. Yes.

Q. And what is the 22½ cents?—A. The 22½ cents is 90 per cent of the cost of lubricating their passenger cars prior to November 1, 1895.

Q. That is to say, in your first contract you agreed to lubricate their passenger cars for 90 per cent of what it had theretofore cost the road itself?—A. Yes, sir.

Q. And in that way you got at the figure 22½ cents per 1,000 miles for passenger cars?—A. Yes.

Q. What does the 12½ cents mean under the column "Freight cars?"—A. The 12½ cents is the guaranteed cost for lubricating freight cars and represents 90 per cent of the cost of lubricating its equipment prior to this contract.

7351 Q. So the way you got at the original figures, in your first contract with the Atlantic Coast Line, was under an agreement whereby you agreed to lubricate that road for 90 per cent of what it had theretofore cost the road itself?—A. Yes.

Q. Both as to locomotives, passenger and freight cars?—A. Yes, sir.

Q. Those figures, then, were not arbitrarily made by you?—A. No, sir.

Q. That was not an arbitrary price which you made to the Atlantic Coast Line?—A. No, sir.

Q. But a price that was based upon prior performance?—A. Yes, sir.

Q. Made by the road itself?—A. Yes, sir.

Q. What is the date of your next contract with the Atlantic Coast Line?—A. The next contract was for 20 months from November 1, 1896.

Q. And the guaranty for locomotive lubrication was how much?—A. $2.20 per 1,000 miles.

Q. Under the first contract it had been $2.25. How did you get at the figure $2.20, in the second contract, for locomotive lubrication?—A. That was based upon our experience during the year from November 1, 1895, to November 1, 1896. We had reduced the cost, and, if I remember correctly, had fallen below the guaranty of $2.25 consequently we offered a lower guaranty.

Q. How did you get at the figure of 21 cents for passenger-car lubrication in your second contract, made November 1, 1896?—
7352 A. That was based upon our experience during the first contract; and, if I remember correctly, we had met or fallen below the 22½cents, and consequently offered a reduction in the guaranty.

Q. Did you also get at the 11½-cent guaranty for freight cars, in your 1896 contract, in precisely the same way?—A. Yes, sir.

Q. When was your next contract with that road?—A. The next contract was for 24 months from July 1, 1898.

Q. How did you arrive at the figures in that contract?—A. Those figures were arrived at based upon our experience during the previous contract, and we had either met or fallen below the guaranties in the next previous contract, and consequently offered a further reduction of guaranty.

Q. Reducing the locomotive lubrication to $1.85, passenger car lubrication to 18 cents, and the freight lubrication to 10 cents per 1,000 miles, respectively?—A. Yes, sir.

Q. When was your next contract with that road?—A. The next contract was for 24 months from July 1, 1900.

Q. How did you get at those figures?—A. Those figures were again based upon the experience of the next previous contract; and we offered a further reduction of 10 cents a thousand miles for locomotive lubrication.

Q. Will you please explain why it was that the cost of locomotive lubrication in the Atlantic Coast Line contract was increased from $1.75 under the July 1, 1900, contract, to $1.82, under the July
7353 1, 1902, contract?—A. During the last year of the contract, beginning July 1, 1900, the Atlantic Coast Line had acquired the Plant system of railways, and one or two other small lines which I do not recall now. The Plant system had a guaranty of $2.10 for locomotives, 18 cents for passenger cars, and 11 cents for freight cars. That contract was originally on a basis of $2.25 for locomotives, 20 cents for passenger cars, and 14 cents for freight cars. The Plant

system had not gotten down to as economical a basis of working as the Atlantic Coast Line had, consequently the locomotive guaranty had been increased to the extent of 7 cents per 1,000 miles.

Q. In order to average up the——A. To offset——

Q. The cost for the entire system treated as a whole?—A. Yes.

Q. Have you made other contracts since the year 1902 with the Atlantic Coast Line?—A. Yes, sir.

Q. Under what circumstances, so far as cost of lubrication is concerned?—A. Our next contract was for 24 months from January 1, 1904; the guaranty for locomotives being $1.80, passenger cars 16 cents, and freight cars 8½ cents.

Q. Why was the locomotive lubrication cost decreased 2 cents per 1,000 miles there, and the passenger car cost 2 cents, and the freight car cost 1½ cents?—A. That was the result of our experience during the 18 months' contract prior. We had succeeded in reducing the cost sufficiently to warrant us in making that reduced guaranty.

Q. What was the date of your next contract?—A. The next contract was for 36 months from January 1, 1906, and the
7354 locomotive guaranty was $1.75, passenger car 16 cents, and freight car 8½ cents.

Q. Why was the locomotive cost reduced from $1.80 to $1.75?—A. I think it was due to the results obtained under the previous contract. We could afford to make a further reduction in the guaranty, based upon our experience.

Q. Were these various changes that were made from November 1, 1895, when your first contract with the Atlantic Coast Line was made, down to the time when the last contract was made, on January 1, 1906, purely arbitrary changes made by the Galena Company, or otherwise?—A. Those were arbitrary changes, made by reason of our experience on that road.

Q. Well, you don't mean "arbitrary." "Arbitrary" means without any reason, as I use the word.—A. Then I will change that. The changes in the guaranties were made by reason of our experience.

Q. Now, I am talking about simply that particular line—the Atlantic Coast Line—without reference to any other railroad in the country. These changes that followed from 1895 down to 1906 were the result of what?—A. The result of economies that had been effected by the use of Galena oils on that road.

Q. And in the making of those contracts with the Atlantic Coast Line from time to time as the respective contracts expired, in making new contracts, was any consideration given whatever to cost of lubrication on any other railroad line in the country?—A. No, sir.

7355 Q. The only question that was considered by the Galena Company, so far as the Atlantic Coast Line was concerned, then, was the cost of lubrication on that particular line, as I understand you?—A. Yes, sir.

Q. Mr. Steinbrenner, how does the total cost of lubrication to the Atlantic Coast Line under the 1906 contract compare with the total cost for lubrication to the Atlantic Coast Line under the 1895 con-

tract?—A. The last contract showed a reduction to the railroad company in cost of $19,087.04 per year as compared with the first contract, not including a reduction in the cost on the Plant system.

Q. In other words, there was a net saving in the cost of lubrication of $19,087.04 per year to the Atlantic Coast Line, comparing its present contract of 1906 with its first contract of 1895?—A. Yes, sir.

Q. Now, I direct your attention next to the contracts made with the Atchison, Topeka & Santa Fe road. What is the first contract of which you have any record made with the Santa Fe?—A. The earliest record you refer to?

Q. Yes, sir.—A. The earliest record of contract with the Santa Fe Railway is from May 1, 1884, based on 10 per cent reduction in the cost of lubricating that road prior to that date.

Mr. KELLOGG. Do you know anything about 1884?

WITNESS. I have a copy of the contract covering that period.

Mr. KELLOGG. That is objected to as hearsay and incompetent, and I move to strike it out.

7356 Q. Have you that contract?—A. We have a copy of it at Franklin, in my office.

Mr. ROSENTHAL (to the witness). I would like to have you produce that original contract, then, if there is an objection made. Make a note of that, please.

Mr. KELLOGG. Let me see that statement that you are testifying from.

(The statement was handed to Mr. Kellogg.)

Mr. KELLOGG. May I ask him a question?

Mr. ROSENTHAL. Yes; surely.

Mr. KELLOGG. Did that early contract that you have testified to show that it was for 90 per cent of the previous cost?

WITNESS. Yes, sir.

Mr. KELLOGG. But it gives no guaranties?

WITNESS. No.

Mr. KELLOGG. So you have no knowledge of that except what you got from the contract?

WITNESS. Just what I got from the contract.

Q. Now, let's have it clearly on the record as to just what you mean by that first Santa Fe contract being on the basis of 90 per cent of the previous cost. That is made with the Santa Fe road in 1884, as I understand you?—A. Yes, sir.

Q. And the Galena Company contracted with the Santa Fe road to lubricate that system for 90 per cent of what it had theretofore cost the Santa Fe road to lubricate it itself?—A. Yes, sir.

7357 Q. But the contract doesn't contain the guaranty cost figures, as I understand it?—A. No, sir.

By Mr. KELLOGG:

Q. Now, let me ask you a few questions about that Atlantic Coast Line, and I probably will not have to ask you anything more on that. You heard Mr. Fechtig testify yesterday, didn't you?—A. Yes, sir.

Q. That they did not arrive at the previous cost when they took the first contract with you?—A. He didn't arrive at the previous cost for the entire system, as it was comprised of several lines at that time; but he stated that it was much below the previous cost—that was his recollection.

Q. But he said they had no means of arriving at the cost?—A. He may not have had the means to-day, but it was done then.

Q. No; he said they didn't, at that time, didn't he?—A. I don't think so. He didn't so state to me.

Q. Now, he was asked this question: "The Atlantic Coast Line contract was originally taken upon the basis of the previous cost to the road, was it not?—A. We couldn't well arrive at that, sir; we took it on the figure, I think, of $2.25, 22½ cents for passenger, and 12½ for freight. At that time, sir, the Atlantic Coast Line consisted of a whole number of roads, I think ten or twelve, beginning on the north with the Richmond and Petersburg road, 23 miles long. Q. Was the Charleston & Western Carolina taken upon the basis of its previous cost?—A. Yes, sir. Q. And to what extent the basis of the previous cost entered into the Atlantic Coast Line contract,
7358 by reason of the fact that it consisted of a number of these smaller lines that were amalgamated, you don't know?—A. I don't know. We couldn't arrive at that. There were so many small roads we couldn't well arrive at the cost, but as well as we could get at it, we got the contract away below the original cost."—A. Yes.

Q. Now, they didn't have the figures of the original cost, did they?—A. My recollection is that the correspondence in our office indicates that it was 90 per cent of the previous cost.

Q. Did you make that contract?—A. I was present at the time it was made.

Q. Did you make up the figures of the previous cost?—A. No.

Q. Do you know where they were obtained?—A. They were obtained from Mr. Fechtig, as nearly as he could arrive at them at that time.

Q. Have you those figures in your office?—A. No, sir.

Q. And you state that merely from your recollection?—A. From my recollection and observation at the time.

Q. The contract itself does not state that it was 90 per cent of the original cost?—A. No, sir.

Q. You don't know who sold the Atlantic Coast Line oil previous to that time?—A. No, sir.

Q. Or anything about their system of lubrication?—A. No.

(The direct examination was then resumed.)

By Mr. ROSENTHAL:

Q. When was your first contract made, for lubrication, with
7359 the Santa Fe?—A. May 1, 1884.

Q. And that, as I understand you, was based upon a 10 per cent reduction of the previous cost?—A. Yes, sir.

Q. And when was the next contract made?—A. The next contract of which we can find a record is for valve and signal oils from January 1, 1888, to January 1, 1889, without a guaranty.

Q. And when is the next contract of which you have a record?—A. The next contract—we have no record of an existing contract there, but the record shows the use of Galena oils on all services from July 1, 1890, up to May 30, 1894, apparently without a guaranty.

Mr. KELLOGG. That is objected to, and I move to strike it out as hearsay.

Q. When was your next contract?—A. The next contract was for 23 months from June 1, 1895.

Q. Have you any personal knowledge of that?—A. Yes, sir; I was present when that contract was made.

Q. And how did you arrive at the figures there?—A. The figures there were shown to us at the time the contract was made, and we took the guaranties at 90 per cent of the previous cost.

Q. You say, "The figures were shown to us." What figures, from where obtained, and by whom shown?—A. The purchasing agent had a statement of the figures, and our president and myself were
7360 in the purchasing agent's office in the negotiation of this contract.

Q. Those figures that the purchasing agent of the Santa Fe had, when you made your 1895 contract, show that the cost of lubrication of locomotives to the Santa Fe road for the preceding year had been how much?—A. Locomotives, $1.33——

Q. No; for the preceding year.—A. I will have to figure that out. This (referring to statement) is 90 per cent of what the figures were.

Q. That is to say, the figures shown in your June 1, 1895, contract, are 90 per cent of what it had theretofore cost the railroad company to lubricate its system?—A. Yes, sir.

Q. And 90 per cent of that cost, so far as locomotive lubrication was concerned, meant how much?—A. $1,335; passenger cars, 12.1 cents; freight cars 9.2 cents.

Q. Those figures, you say, were based upon 90 per cent of the previous 12 months' cost to the railroad company?—A. Yes, sir.

Q. When was your next contract with the Atchison, Topeka & Santa Fe?—A. The next contract was for 36 months, from May 1, 1897, and guaranties were made then separately for each division comprising the system.

Q. And theretofore the contracts had been with the Santa Fe system as a whole?—A. As a whole.

Q. And from 1897 on the contracts were contracts covering each division?—A. Excepting the five-year contract from July——

Q. I mean the 1897 contract.—A. Yes.

Q. The 1897 contract was a contract covering each di-
7361 vision?—A. Covering each division; yes, sir.

Q. I observe that under the contract of May 1, 1897, which covers four different divisions of the Santa Fe, that the cost of lubrication, as stated in the contract, for both locomotive, passenger, and freight cars, seems to be different on each of those four divisions?—A. Yes, sir.

Q. How did you get at those figures?—A. Those figures were based upon the experience under the previous contract—the costs obtained under that contract.

Q. They were not arbitrarily arrived at, then?—A. No, sir.

Q. And on one divison I notice the cost of lubrication is $1.20 a thousand miles, and on another $1.4225 a thousand miles for locomotive lubrication.—A. Yes, sir.

Q. That, as I understand you, then, represented the difference in the cost of lubrication that had theretofore existed on those two divisions?—A. Yes, sir.

Q. When was your next contract made with the Santa Fe?—A. The next contract was made for five years from July 1, 1900.

Q. And that covered all of the lines of the Santa Fe system?—A. All lines of the Santa Fe system, under one guaranty.

Q. I notice an increase there in the cost of locomotive lubrication, of from 40 to 60 cents per one thousand miles. How do you explain that increased cost of locomotive lubrication?—A. That increase was due to the line having put in some larger power and having consolidated varous divisions where the costs were much higher.

7362 Q. Comparing the July 1, 1900, Santa Fe contract with the July 1, 1905, Santa Fe contract, I find the cost of passenger and freight-car lubrication to be the same under both contracts, but the cost of locomotive lubrication seems to have increased from $1.82½ to $2.72, $3.30, and $1.90, respectively. In the first place, can you explain what it was generally that caused the increase?—A. The increase in locomotive guaranties was brought about by the tremendous number of large engines being put into service during the contract beginning July 1, 1900.

Q. In your July 1, 1905, contract on the Atchison, Topeka & Santa Fe proper, your guaranteed locomotive lubrication cost was $2.72, was it?—A. Yes, sir.

Q. On the Coast Lines, it appears to have been $3.30, and on the G., C. & S. F., what is that?—A. That is the Gulf, Colorado & Santa Fe.

Q. It seems to have been $1.90. Will you please explain what it was that caused those differences in the locomotive guaranties on those three branches of the Santa Fe system under your July 1, 1905, contract?—A. The respective guaranties were the result of the costs that had been obtained under the last year that we were operating under the previous contract. The reason that the Gulf, Colorado & Santa Fe had so much lower guaranty than the other two divisions, the road had concentrated on the Gulf, Colorado & Santa Fe much of its lighter power that had been in existence prior to that time. The result was that they had lubricated their engines at a cost of

7363 $1.93½ on which we based the guaranty of $1.90. The Santa Fe proper had reached a cost of $2.81. We made them a guaranty of $2.71. The Coast Lines (where they had put in the largest power, the greatest number of heavy engines) had arrived at a cost of $3.37, and we made the guaranty to begin at $3.30 for locomotives, under that contract.

Q. Now, let's see. The Santa Fe system had and operated, from 1900 to 1905, three separate lines, namely, the Santa Fe proper, the Coast Line, and the Gulf, Colorado & Santa Fe?—A. Yes, sir.

Q. Your contract, covering those three different roads that comprised the Santa Fe system, was made as one contract with the Santa Fe officials, was it?—A. Yes, sir.

Q. And that one contract provided for a cost of locomotive lubrication, on one of the three systems, of $1.90 per 1,000 miles, and on another branch of the same system of $3.30 per 1,000 miles, and on another branch of the same system $2.71 per 1,000 miles?—A. Yes.

Q. And that was because in the five years' operation of those three different lines that made up the Santa Fe system you had discovered that there was that wide variance in the actual cost of lubrication?—A. Yes.

Q. And you made your contract accordingly. Why could not the Santa Fe lubricate its engines on the Coast Lines just as cheap as it could lubricate its engines on the Santa Fe road proper?—A. The Coast Lines have a larger type, a different type of engines, than

7364 the Santa Fe proper. They have, in that section of the country what is called a Decaped engine. It has larger cylinders and a greater number of driving axles, if I remember correctly; and it is in a mountainous country.

Q. So here is one great railroad system, Mr. Steinbrenner, that in effect has three separate and distinct price contracts for locomotive lubrication of three separate and distinct portions of its system?—A. Yes.

Q. With a range running from $1.90 per 1,000 miles to $3.30 per 1,000 miles?—A. Yes, sir.

Q. And that difference, as I understand, was not an arbitrary difference, but was based upon the actual cost of lubrication as shown by the actual performance of the locomotives during the previous years?—A. Exactly.

Q. What do you mean by a "sliding-scale guaranty?"—A. A sliding scale provides that the railroad company shall participate in any reductions brought about in the reduction in the cost of lubrication. In other words, in order that the railroad employees might have an incentive to cooperate with us, we say, "If you will cooperate with us and reduce this cost, the guaranty shall recede in proportion to the reduction in the cost of lubrication."

Q. To illustrate that, under your 1906 contract with the Gulf, Colorado & Santa Fe Railway (part of the Santa Fe system), while the guaranty named in your contract was $1.90, the actual guaranteed

cost, as appears from the Government exhibit already in evidence, and which was actually paid, was only $1.88\frac{8}{10}$?—A. Yes, sir.

7365 Q. That illustrates what you mean by the sliding scale?—A. By the sliding scale.

Q. And the $3.30 guaranty of the Coast Lines was actually, in the working out of the contract, reduced to $2.96½?—A. Yes, sir.

Q. Instead of $3.30?—A. Yes, sir.

Q. So, to sum up your testimony with respect to the Santa Fe contract, it appears that your original contract with that road was a contract wherein the Galena company agreed to lubricate the Santa Fe road for 90 per cent of what it had theretofore cost the Santa Fe road to lubricate its own system itself?—A. Yes, sir.

Q. And that each of your contracts that you have entered into with the Santa Fe road, from that first contract down to the last contract made in the year 1905, was in every instance based upon the actual cost of lubrication that it appeared to have cost under the previously existing contract?—A. Yes, sir.

Q. And that is your explanation, is it, of the original contract figure, and the variations that have been made in the various contract figures in the contract subsequent to the first contract?—A. Yes, sir.

Q. Under your contract that was made July 1, 1900, I observe a note to the effect that there was a mutual agreement to increase the locomotive guaranteed cost from $1.82½ to $2.10. Will you please explain that?—A. On two of the divisions—I think they were the A., T. & S. F. proper and the Coast Line division—the guaranty was

7366 raised from $1.82 to $2.10, on account of the small engines on those two divisions having been transferred to the Gulf, Colorado & Santa Fe division, and much larger engines installed on the Santa Fe and Coast Line divisions.

Q. Then, as I understand you, the reason why the cost of lubrication during those years that you have covered, on the Santa Fe road, differs from the cost of lubrication during the years that we have shown, on the Atlantic Coast Line, is first, because, while the roads were lubricating themselves, the cost of lubrication to the roads was different because the Galena Company, primarily, undertook to contract at 90 per cent of what it had theretofore cost the railroads, and because during the years that the Galena Company has lubricated these two roads, the performances have been different on the different roads; that is to say, the cost of lubrication to the Galena Company has been different?—A. Yes, sir.

Q. Now, does the Galena Company lubricate the Ann Arbor road?—A. Yes, sir.

Q. What is that, the Toledo & Ann Arbor?—A. No, it is known as the Ann Arbor to-day. That is the name of it.

Q. And, as I understand you, every contract or document from which you have made up this data is now at the Galena-Signal offices at Franklin, and you are ready and willing to produce them at the request of the Government?—A. Yes, sir.

Q. If they wish them. Or, the Government may send its expert to the Galena offices to examine the original documents?—A. Yes.

7367 By Mr. KELLOGG:

Q. Now, this earliest record of a contract, of May 1, 1884, contained no mileage guaranties, did it?—A. No, sir.

Q. That was a contract simply to lubricate the road?—A. Yes, sir. It specifies, at 10 per cent reduction of the previous cost.

Q. And what prices did you charge them for the oil?—A. The same as we do to-day.

Q. 48, 28 and 18 cents, with the freight added?—A. Yes, sir, with freight added.

Q. Previous to that time, where were they buying their oil?—A. I don't know.

Q. They may have been buying Galena, for all you know?—A. I don't know anything about it.

Q. And all you know about that early period is what you gained from the examination of the contract?—A. Yes, sir.

Q. From that time on down to the time you entered into the contract with the mileage guaranty, that company obtained its oils from the Galena-Signal Company, did it?—A. The next contract of which we find record is for valve signal oil, from January 1, 1888, to January 1, 1889, without a guaranty. Then we have no record of contract in existence from that time until July, 1890. That is the next record I can find of contract.

Q. Do your books show that you sold that company its lubricating oils?—A. I couldn't determine that.

7368 Q. You didn't look to see?—A. No, sir.

Q. You made no examination?—A. No, sir.

Q. Well, your books will show whether you were selling the Santa Fe road a large amount of oil during those years, won't they?—A. I couldn't find a record showing the sales during that time.

Q. Do you mean the records were not in existence, or that there were no records at all?—A. Well, there must have been records at that time, but they are not in existence to-day—not of the sales.

Q. The sales records are not in existence?—A. No.

Q. Did you inquire to find out whether the Santa Fe was buying the oil between 1884 and 1890?—A. No, sir.

Q. You don't know anything about it?—A. No, sir; except as I found these records I specify.

Q. No vouchers to show payments by the Santa Fe during those years?—A. No, sir.

Q. No records of anything at all?—A. No records.

Q. But from 1888 down to 1895, a period of seven years, before this contract was entered into, they did buy their oils of the Galena-Signal Oil Company?—A. I don't know.

Q. Well, you say you have a record of that contract?—A. We have a record of the use of our oils on all services up to May 30, 1894, from July, 1890.

Q. And that is the time your contract was entered into?—A. That was the contract at that time.

Q. That is, from 1890 down to 1894?—A. There seems to be
7369 a lapse from May 30, 1894, to the time of our contract, June 1, 1895. I couldn't find any record, either of sales or of the use of our oils, during that time.

Q. But you have no reason to believe that they were not buying of the Galena Company?—A. I haven't any opinion as to that.

Q. One way or the other?—A. No, sir.

Q. Those oils were sold during those years at the same price—48, 28, and 18 cents a gallon?—A. That is what I am told.

Q. You only get your information from the records?—A. From the records.

Q. Or from what you are told about it?—A. Yes, sir.

Q. So that the contract of July—what?—A. June 1, 1895?

Q. Yes—you say was taken at 90 per cent of the previous cost?—A. Yes, sir.

Q. The previous cost was, buying your oils at 48, 28, and 18 cents a gallon?—A. Yes, sir.

Q. And using them themselves?—A. I presume so.

Q. And did you find the figures of that cost?—A. The figures were presented at the time we were making the contract.

Q. Have you those figures yet?—A. No.

Q. You simply put that statement in from your recollection?—A. From my recollection at the time the contract was made. I was present.

Q. You have no record in your office of what the previous cost was?—A. I didn't look it up. I might be able to find it.

Q. But you made this statement here——A. From my recollection.

7370 Q. Under oath, simply from your recollection?—A. From my recollection.

Q. You don't know what that previous cost was?—A. It would be one-ninth greater than these figures.

Q. And you simply state that, after a period of thirteen years, from your recollection?—A. I have a pretty good memory.

Mr. KELLOGG. I should think you have.

Mr. ROSENTHAL. He has demonstrated that already.

Q. Now, you have gone over hundreds of contracts since then, haven't you?—A. Yes, sir. Every one of them passes through my hands.

Q. And you didn't look to see whether you had any record of that previous cost or not?—A. I can't say now whether I did or not.

Q. You don't know on what basis that previous cost was made up at all?—A. I know it was 90 per cent of the previous cost.

Q. And that is all you know?—A. Yes.

Q. Now, when you came to renew that contract, in 1897, you say that the guaranties were based upon previous cost?—A. The operations under the last contract.

Q. You don't mean that the guaranties were based on the previous cost to the railroad company?—A. Are you talking now about the contract beginning May 1, 1897?

Q. Yes.—A. The cost to the railroad company. I think we had met the guaranties in the previous contract, consequently those figures that are entered under the contract beginning May 1,
7371 1897, were based upon the cost to the railroad.

Q. Based on the invoice cost, you mean?—A. Yes, sir.

Q. Oh, well!—A. To the railroad company.

Q. Yes; on the invoice cost, at 48, 28, and 18 cents a gallon?—A. Exactly. Because the cost had fallen below those previous guaranties of $1.335, .121, and .092, and I think you will find that we had met the guaranty at that time.

Q. That is, you mean that the Santa Fe for 1897 had paid invoice price, do you?—A. No; not for 1897. I say for the contract prior to May 1, 1897.

Q. That would be for the year ending May 30, 1897, wouldn't it?—A. No; that would be for some months prior to May 1, 1897.

Q. Well, that would be eleven months—the year ending April 30, 1897—wouldn't it?—A. Practically so; yes.

Q. Now, the fact is that the Santa Fe Company only paid 94.5 per cent.—A. You have simply the Santa Fe proper in that calculation; you haven't got the system.

Q. Well, the guaranty of $1.20 was on the Santa Fe proper?—A. The $1.33½ was on the Santa Fe proper.

Q. 1897 I am talking about; the new contract.—A. The $1.20 was based upon the operations prior to May 1, 1897.

Q. And that is on the Santa Fe proper, is it?—A. Yes.

Q. Now, as a matter of fact, on the Santa Fe proper, at invoice prices on the amount of oil used, hasn't the actual cost of the engine mileage been $1.117?

7372 Mr. ROSENTHAL. You ought to have those figures shown in the Government exhibits, before you, at the same time, Mr. Steinbrenner. [Placing Government exhibits before witness.]

WITNESS. What year are you referring to, Mr. Kellogg?

Q. For the 11 months ending April 30, 1897, I ask you if the actual cost based on the invoice price had not been $1.117 per thousand miles run?—A. I don't know. I haven't figured that.

Q. Well, figure it out and see—A. Now, let me explain, Mr. Kellogg. You have the 11 months immediately prior to May 1, 1897. This contract may have been negotiated several months prior to its commencement, and was based upon the reports we had up to that time. It may not be based upon these 11 months. So you couldn't determine that.

Mr. ROSENTHAL. It was either based upon the 11 months, or so much of the 11 months, then, as had expired at the time of the making of the contract?

WITNESS. Yes.

Q. Well, the 11 months had expired.—A. The 11 months that we had reports of it for.

Mr. ROSENTHAL. Or at the time of the negotiating of the contract?

WITNESS. Yes.

Q. Do you know whether it was or wasn't?—A. I know, because I made the contract.

Mr. ROSENTHAL. That is, you know it was one or the other?

WITNESS. One or the other.

7373 Q. What years and what months was it based on, then?—A. It was for some period prior to May 1, 1897; within the twelve months.

Q. Now, I ask you, if the eleven months of the prior year, ending April 30, 1897, before that contract was entered into—if the actual cost at the full invoice price was not $1.117 instead of $1.20?—A. I don't know. If you have figured it out I presume it is so. But it doesn't follow that that figure of $1.20 was arrived at on these eleven months' operations.

Q. Well, when was it arrived at?—A. It was arrived at on some months contained within that period.

Q. That is, you may have picked out certain months?—A. No, we may have taken a twelve months' period within that time.

Q. Well, there is no twelve months within eleven, you know.—A. We may have taken part of the eleven months, going back.

Q. You don't know what you did take, do you?—A. I couldn't tell you now, no; but it was based upon some operation during that period.

Q. If you can't tell us the period on which you based this, how can you give an opinion that the contract was based upon the previous year's operation?

Mr. ROSENTHAL. I will have to object to that, for two reasons. In the first place, he has said that it was based either upon the eleven months' period, or so much of the eleven months' period as had expired when the contract was entered into, or twelve months

7374 immediately preceding the entering into of the contract.

Mr. KELLOGG. Or some other old period.

Mr. ROSENTHAL. No; and furthermore, he has not stated it as an expression of opinion. He stated it as a positive fact.

Q. But you don't know what months it was based on?—A. I don't recall now.

Q. You don't know whether it was that year or some previous year?—A. I know it was immediately previous to the negotiation of this contract, because I negotiated it myself.

Q. You know it was some months of the year immediately preceding that time?—A. Yes.

Q. Very well. Now, if the eleven months preceding the making of that contract only showed $1.117 instead of $1.20, then you must have gone back to some other year?—A. No, Mr. Kellogg; sometimes three or four months elapse before we receive our reports from the railroads.

Q. Well, you are just guessing at it now; you don't know about it?—A. No; I know about it.

Q. Well, tell us exactly what months were used on which you based that so that we can figure it out?—A. I can't tell you now.

Q. I thought you couldn't.

Mr. ROSENTHAL. He has already told you that half a dozen times.

7375 Q. The $1.82½ guaranty made July 1, 1900; that was the whole system, was it?—A. That was the whole system; yes.

Q. What had been the cost per 1,000 mile run based upon the full invoice price on the whole system the year before?—A. Somewhat higher than $1.82½. I have forgotten just the figure.

Q. Figure it out and tell us what it was. You say it was somewhat higher.—A. I don't need to figure it.

Q. What were the figures?—A. That $1.82½ was a compromise figure. The contract had been annulled two years prior to its expiration on account of the increasing cost due to increased power. We arrived at the $1.82½ based upon what the railroad company would have received from us as an excess cost and spread it over a 5-year contract.

Q. Then, that wasn't based upon the actual cost at the full invoice prices the previous year?—A. That was an element in the computation.

Q. That was only one of the elements.—A. That was an element in the computation.

Q. As a matter of fact, the actual cost at the full invoice price over the whole system was much less than $1.82, wasn't it?—A. No; it was more.

Q. Figure it out.

Mr. ROSENTHAL. That is a matter of long computation. You have no right to ask the witness to do that.

Mr. KELLOGG. He can do it in five minutes.

Mr. ROSENTHAL. Let Hunter figure it out and give it to
7376 our man.

Mr. KELLOGG. We have got it figured out.

Mr. ROSENTHAL. Do you say you have worked that out, Mr. Hunter?

Mr. KELLOGG. He has got it worked out by divisions.

Mr. ROSENTHAL. Mr. Crawford tells me it will take half an hour to work that out.

WITNESS. I guess that is right. You have got to add all the divisions together and all the mileage together and the total cost together.

Q. In order to arrive at the average you take the mileage of all the divisions and the cost of all the divisions and divide the cost by the mileage, wouldn't you?—A. Yes; that would be the operation.

Q. Now, doing that it would make the average cost of the Santa Fe system for the previous year, based upon the invoice price, about $1.68, wouldn't it? [handing witness calculation].—A. Well, I will verify that before I answer that.

Q. Just take those figures and verify them.—A. That seems to be the average for that year.

Q. So that the contract of July 1, 1900, was not based upon the cost of the previous year of all the divisions?—A. Not for locomotives alone.

Q. No.—A. You will notice that we had reduced the freight cars, the freight car guaranty, from 11.9 to 7 cents and added a part of that to locomotive guaranty.

Mr. ROSENTHAL. Will you explain that fully while you are at it—just how you got at those figures?

7377 WITNESS. The guaranties on passenger and freight cars for the contract from May 1, 1897, were higher and had been met, while the locomotive guaranty had not been met. In arriving at the figures for the contract from July 1, 1900, we reduced the guaranties for passenger and freight cars to 12 cents for passenger cars and 7 cents for freight cars, whereas prior to that time it had been greater, and adding a portion of that reduction in passenger and freight cars to locomotive guaranty.

By Mr. ROSENTHAL:

Q. Are there any equivalents between the locomotive and passenger and freight car costs?—A. Yes.

Q. Explain that, please.—A. A reduction in the guaranty of freight cars of only one cent per 1,000 miles is equivalent, on an average, to 12 cents in locomotive service, and in arriving at that $1.82½ we use part of the freight-car guaranty in adding it to the locomotive guaranty.

Q. How much did you reduce the freight-car cost?—A. The freight-car guaranties for the Santa Fe proper were 9.2 cents, for the Gulf, Colorado & Santa Fe division 10 cents, for the Santa Fe Pacific 10½ cents, and the Southern California 11.9 cents. We made them all 7 cents.

Q. That is about an average of how much reduction—3 cents?—A. It would probably average 2½ cents.

Q. And that is equal to how much on the locomotives?—A. That would be equivalent to about 30 cents on locomotives.

Q. So that 30 cents off of the $1.82 would make up that difference?—A. More than make it up. It shows we did not

7378 consume the difference entirely on the guaranty of freight cars to apply to the locomotive guaranty.

By Mr. KELLOGG:

Q. Now, Mr. Steinbrenner, you say that one cent a mile on the freigt cars would amount to about 12 cents on the locomotives?—A. Yes; I think that would be the ratio.

Q. Now, are you guessing at that, or are you testifying to what you know?—A. That is the average on all lines.

Mr. ROSENTHAL. That can be demonstrated.

WITNESS. Yes, sir.

Q. Now, on the Santa Fe, isn't it about 6 cents instead of 12 cents?—A. No.

Q. Wasn't it for that previous year?—A. Not for the entire system. I think you will find your locomotive mileage about one-twelfth of the freight car mileage. Even at 6 cents it would make up that difference.

Q. I know, but if you will testify to facts and not guess so much, Mr. Steinbrenner.—A. I am not guessing.

Q. You testified on direct examination that the locomotive mileage of $1.82 was made on the cost of the previous mileage.—A. That was one of the elements.

Q. You testified that was the fact.—A. No, I testified that was one of the elements.

Q. Whenever you stop guessing, why, you have some other explanation.

Mr. ROSENTHAL. Because he calls it "guessing" it doesn't follow that it is guessing. Don't forget that, Mr. Stein-
7379 brenner.

Q. Do you know that the $1.82½ for locomotive mileage, the 12 cents for passenger cars, and the 7 cents for freight cars was the cost?—A. No; that was the guaranty.

Q. Was the cost of the previous year on the whole system of the Santa Fe road?—A. Those figures were arrived at by that cost.

Q. Was it equivalent to the actual cost on the Santa Fe system the year before?—A. I would say that it was less.

Q. You would say that it was less?—A. Yes.

Q. Do you know whether it was less, or do you simply guess at it?—A. From recollection of the transaction at the time, it was less.

Q. You are just now testifying from your recollection of some ten years ago?—A. I made the contract myself——

Mr. ROSENTHAL. What else would he testify from?

WITNESS—and have a very distinct recollection of it.

Q. Have you the actual figures showing the cost?—A. I could probably produce them.

Q. You "could probably produce them?"—A. Yes.

Q. Did you examine them before you testified?—A. Yes.

Q. And you testify from recollection that that is the actual cost of the Santa Fe for the previous years?—A. I didn't say it was the actual cost; I said those figures were based upon the actual cost.

Q. What do you mean by "based upon the actual cost," less or more?—A. I would say that it was less.

7380 Q. Do you swear positively it was less?—A. Yes.

Q. You do?—A. Yes.

Q. Now, how much did you reduce the freight car below the invoice cost during the previous year?—A. Below the invoice cost?

Q. Yes.—A. None.

Mr. ROSENTHAL. Now, where are those statements?

Q. And the passenger cars?

(Witness refers to papers, and, together with his assistant, makes calculation.)

Mr. KELLOGG. While he is working it out I will ask some more questions.

Q. During the last two years of that contract you increased that cost from $1.82½ to $2.10?—A. Yes.

Q. Was that the actual cost to the Santa Fe Company the previous year?—A. No, that figure was arrived at again based upon some operations during the contract beginning July 1, 1900.

Q. What do you mean by "some operations?"—A. Some figure prior to the arriving at the $2.10 rate.

Q. You mean some month?—A. No, some series of months.

Q. You don't know what months?—A. No, I can't tell you, and I don't refer to it in this statement, and I haven't said so.

Q. Now, during all these years there was a profit to the Galena-Signal Oil Company in this, wasn't there?—A. I presume so.

Q. How much of a profit, do you know?—A. I can't tell you.

Q. You don't know?—A. No.

7381 Q. Well, is was a profitable contract to the Galena-Signal Oil Company?—A. Yes, sir.

Q. And you based each subsequent contract upon the cost to the Santa Fe Company, including whatever profit your company made?—A. Based upon our experience under the different contracts.

Q. You got all you could, didn't you?—A. We got what we thought was fair.

Q. And they were trying to make the best bargain they could with you, I suppose?—A. I expect so.

Q. And you were trying to get the most you could out of them?—A. No; trying to get our full invoice price, which we always do.

Q. And that invoice price is the same to-day as it was thirty years ago?—A. Yes, sir.

Q. Now, during the four years previous to the present contract, the Atchison Company got back about 20 per cent, didn't it, of the invoice price?—A. Some years——

Mr. ROSENTHAL. I suggest you examine the statement on that, Mr. Steinbrenner. (Papers handed to witness.)

WITNESS. During what years?

Q. Four years previous to the present contract. It got back about 20 per cent of the invoice price?—A. Four years prior to July 1, 1905, did you say?

Q. Yes. Four years ending July 1, 1905, the Santa Fe Company got back about 20 per cent?—A. The excess appears to be about that.

7382 Q. Well, it got back about 20 per cent?—A. Yes.

Q. Now, during the year ending June 30, 1906, under the new contract, it got back about 1 per cent, didn't it?—A. June 30, 1906?

Q. Yes.—A. I haven't the percentage here.

Q. You can see at a glance it isn't much over 1 per cent.—A. About 1½ per cent.

Q. So when they entered into that new contract you increased the guaranties enough to take up the 20 per cent that you had previously, for the four years, paid back to the Santa Fe Company?—A. Every time a contract was made——

Q. Can you answer that question?—A. I am trying to answer it.

Q. Did you or did you not?—A. I am going to answer it my own way, Mr. Kellogg.

Q. Did you or did you not?—A. I am going to answer that just as I want to.

Q. You are?—A. Yes. When each of those contracts was made it was based upon past experience, and each time we had expected to meet those guaranties, but during the course of each of those contracts the heavier power came in so rapidly that neither the Santa Fe nor ourselves could estimate the cost or what a fair guaranty would be in the future. So we based it upon the past experience, and each guaranty was based or made with the expectation of meeting it.

Q. Now, will you answer my question? As a matter of fact, you increased the guaranties enough under the last contract to sub-
7383 stantially take up the refund that you had paid the Santa Fe in the previous years?—A. The last contract was made the same as all other previous contracts, based upon the experience prior thereto.

Q. Well, is it a fact that the guaranty was increased substantially enough to take up the previous refund for four years?

Mr. ROSENTHAL. Did it have any relation to the previous refund?

WITNESS. No; the refund was not considered.

Q. As a matter of fact, it did absorb the refund, didn't it?

Mr. ROSENTHAL. Not unless it was considered.

Mr. KELLOGG. Now, will you let the witness answer?

WITNESS. If the cost had continued as it had prior to the making of that contract the excess would have been much greater; but by reason of the sliding scale we reduced the cost the first year under that contract and have ever since. Consequently, the excess is less.

Q. Well, is that what I asked you?—A. That answers your question, in my estimation.

Q. Do you decline to answer the question of whether that contract actually did take up the amount that you had refunded previously?—A. The guaranties didn't take it up.

Q. Under the guaranties the amount they paid you was substantially 20 per cent more than it was the year before?—A. I wouldn't say so. The cost had been brought down to meet those guaranties.

Q. Well, you decline to answer, do you?

Mr. ROSENTHAL. No; he doesn't.

WITNESS. No; I have answered it.

7384 Q. I don't think you have. During the four years previously you had paid back to the Santa Fe Company 20 per cent, hadn't you?—A. Approximately.

Q. And 1905 you paid them back one per cent?—A. Yes.

Q. Now, what made the difference?—A. The reduction——

Q. The guaranty was increased, wasn't it?—A. The guaranty was increased and the cost had been reduced.

Q. And it was increased to make up that difference?—A. No.

Q. It did make up the difference, didn't it?—A. No, the cost had been reduced to meet the guaranty. The sliding scale indicates that.

Q. Of course that is not true, and you know it.

Mr. ROSENTHAL. What do you say to that statement, that it is not true, and you know it?

WITNESS. It is true.

Mr. ROSENTHAL. And he knows that it is true?

WITNESS. Yes.

Mr. ROSENTHAL. Why, of course.

Q. Did you have a profit both years?—A. We certainly did, I suppose.

Q. How big a profit?—A. I am not telling that.

Q. Do you decline to answer?—A. I don't know it.

Q. You don't know it?—A. No.

Q. How much do you have to get in order to make a profit?—A. I don't know.

7385 Q. You don't know?—A. No.

Q. You have no figures on the profits at all?—A. No, sir.

Q. You don't know anything about it?—A. Not on any individual contract.

Q. You know the cost of manufacturing this oil, don't you?—A. No, sir.

Q. You don't know anything about it?—A. No, sir.

Q. The company keeps records, doesn't it?—A. I don't know.

Q. Will you produce the cost of manufacturing these grades of oil that you sell to the Santa Fe Company?—A. No, sir.

Q. You decline?—A. I decline, under the advice of counsel.

Q. How do you know, then, that you lost money on the Pennsylvania contract?

Mr. ROSENTHAL. Now, Mr. Kellogg, I have no objection to your cross-examining in the way that you are doing here, on each road, as you go along, but I don't want to permit general cross-examination until I get through with him.

Mr. KELLOGG. All right. I will withdraw that question. I will ask one question more. You decline to give the cost of your oil, the three kinds of oil you sold there, do you?—A. Yes.

Mr. KELLOGG. All right.

(The hearing was then adjourned until the morning of Thursday, June 4, 1908, at 10.30 o'clock.)

7386 ROOM 722, CUSTOM-HOUSE, NEW YORK CITY,
Thursday, June 4, 1908, 10.30 a. m.

The hearing was resumed before the special examiner, Hon. Franklin Ferriss, at the above time and place.

Present: On behalf of the petitioner, Mr. Frank B. Kellogg, Mr. J. Harwood Graves; on behalf of the defendants, Mr. Moritz Rosenthal, Mr. Frank L. Crawford, Mr. W. Cleveland Runyon.

C. C. STEINBRENNER recalled and his direct examination resumed:

By Mr. ROSENTHAL:

Q. Have you figured accurately the relation between the freight mileage and the locomotive mileage, as to the equivalents?—A. On the Santa Fe, for the year 1900, I have figured it. It is a little over ten to one—that is, one cent—on freight cars.

Q. The year ending June 30, 1900?—A. 1900. The average for the Santa Fe system, one cent on freight cars, would be equivalent to a little over 10 cents on locomotives.

Q. Is that a fixed average on the cost of every road?—A. No, sir.

Q. That will range how on the different roads?—A. It will range anywhere from 10 to 15.

Q. That is, the ratio of 1 to 10 to 15?—A. Yes. It might
7387 be a little more one year and a little less the other.

Q. Did I ask you yesterday to explain the reason for the increase in the locomotive cost on the Santa Fe in the contract that was entered into July 1, 1900?—A. Yes, sir.

Q. Will you please explain that?—A. If you will kindly give me that sheet.

(A sheet of paper was handed to the witness by Mr. Rosenthal.)

Q. You heard Mr. Hodges testify, did you?—A. Yes, sir.

Q. The Santa Fe man. With respect to the original contract of
1897 Mr. Hodges testified as follows: "The original contract was made in 1897. Almost immediately thereafter we began (as well as other roads) to increase the size and capacity of our power, and the conditions were very onerous on the Galena Company, and the contract was remade as of July 1, 1900, to adjust the conditions, or, rather, to adjust the contract to the existing conditions." And then he was asked: "Why did you adopt uniform guaranties for the entire system?" and he replied, "Because at that time it was the easiest thing to do, as a whole system. I attempted to throw the balance of the years of the contract in one lump and spread the loss that we would make by giving up the original contract into those three years, and I could easiest do it by considering one unit as a whole, taking the dollars and cents." Now, what is your recollection of that change at that time?—A. My recollection is that there were two or three elements considered in arriving at that rate of $1.82½ for locomotives.

The excess cost for the third year of the previous contract was
7388 very largely, indeed, brought about by conditions that had taken place during that contract which could not have been

anticipated when the contract was made, such as increase in power and the elimination of the smaller engines, so that at the end of the year I personally took the matter up with Mr. Hodges, of the Santa Fe, with whom the original contract was made, and appealed to him for the abrogation of that contract, as it did not represent the conditions at that time.

Q. And that was what brought about the change?—A. That was what brought about the change.

Q. How did you get at the $1.82½?—A. The $1.82½, we estimated what excess or refund the Santa Fe would be entitled to for the last two years of the contract, under the contract that had been annulled. We then estimated what the guaranty would have been, or the guaranty we would have asked for at the full termination of that contract, and, taking the excess that the Santa Fe would have been entitled to had the contract continued, we reduced that figure down to $1.825 so as to spread the two years' excess on the annulled contract over a 5-year period.

Q. In order to get an average rate that would be perfectly fair to both parties?—A. Yes. And in arriving at that $1.82½ we also took into consideration the reduction in the guaranty on freight and passenger service.

Q. I show you Defendants' Exhibit 33. Will you please tell us what that is?—A. This is a chart or diagram which is made up in my office at Franklin monthly as we receive the reports from the railroads showing the cost per 1,000 miles in locomotive
7398 service, and is for the purpose of watching the costs monthly, and, if there is any increase or change in the costs we can immediately take it up with our experts to bring pressure to bear to keep the costs down.

Q. That is a chart of what road?—A. The Chicago & Alton Railroad.

Q. The figures on the left-hand margin are what?—A. The red ink figures on the left-hand margin under the head of "Guaranteed cost," represent the guaranties in effect; and the red line immediately opposite those figures indicates the length of time that those guaranties were in effect. The black ink figures under the head of "Actual cost" represent the cost per 1,000 miles based upon the invoice prices of the oils.

Q. And that is an accurate representation of cost movement throughout, is it?—A. Yes, sir.

Q. As shown by the waved lines or dotted lines?—A. The waved lines. And I might explain a little further, that in the actual cost there is a variation of 5 cents between the figures, so as to cover the increase or decrease each month.

Q. What do you mean by that?—A. We go from 1.25 to 1.30, from 1.30 to 1.35, and so on up the scale.

Q. The movement is on the multiple of 5?—A. Of 5 cents.

Q. I call your attention particularly to a marked increase in the cost of locomotive lubrication on the Chicago & Alton, beginning the

latter part of 1899 and culminating in July, 1901. Will you
7390 please tell us what the cause of that increased cost of lubrication was, if you know?—A. In the year 1900 the road changed management, and they secured a superintendent of motive power from the Pennsylvania Railroad System. Immediately upon his taking charge the costs seemed to increase. Whether it was due to lack of cooperation or otherwise I personally can not say, but I have been told by our expert that that was the real cause.

Q. The increase was from what to what?—A. In May, 1900, the cost for lubricating——

Q. Well, go back to the low point in 1899.—A. In September, 1899, the cost had been about $1.70, as shown by this sheet, taking an average for 7 months prior to October, and it then increased, in February, 1900, to a cost of $3.15. We succeeded then in bringing it down in May, 1900, to $2.10. About that time this change in management which I referred to took place, and the cost then rose from $2.10 to $4.10 in June, 1901. About that time he left the service of the Alton, and we immediately secured the cooperation that we expected under the contract, and the cost was then reduced, within six months to February, 1902, to $2.70.

Q. From $4.10?—A. From $4.10.

Q. Now, that chart shows simply the cost of lubrication?—A. Yes, sir.

Q. Who was your expert on the Chicago & Alton?—A. Mr. Turner was on that road at that time.

Q. The same Turner who testified here the other day?—A. Yes, sir.

7391 Q. When did the Galena company first begin doing business with the Chicago & Alton?—A. The earliest record which I can find shows the road using Galena oils from January 1, 1890, to April 1, 1900, with a guaranty.

Q. Just what do you mean by that?—A. That they were purchasing our oils without contract and without guaranty figures.

Q. And without any expert service?—A. Yes; I should think it was.

Q. Your first contract was made with the Chicago & Alton April 1, 1900?—A. Yes, sir.

Q. What was the character of that contract?—A. That contract was based upon 90 per cent of the cost that had been established for the year previous.

Q. And in determining what cost that was, what figures did you arrive at?—A. We arrived at the guaranty for locomotives of $1.80; passenger cars, 16.67; and freight cars, 10 cents per 1,000 miles.

Q. And that, you say, was 90 per cent of what it had theretofore cost the Alton itself to lubricate its road?—A. Yes.

Q. When was your next contract made with the Alton?—A. The next contract was made for 12 months from April 1, 1901.

Q. Will you explain the reason for the increase in the cost of lubrication from $1.80 to $2.50 in that contract?—A. That contract was made with the new president of the Alton Railroad, who was also a Pennsylvania man, or who had come from the Pennsylvania.

7392 Mr. KELLOGG. Who was that?

WITNESS. Mr. Felton. And the conditions that we had found, by reason of the Pennsylvania management, gave us cause for asking for that guaranty.

Q. Do you know whether there was any increase in the size of the locomotive equipment?—A. Increase in locomotive equipment, and the change in management.

Q. It was those two factors, then, that account for the increase in cost of locomotive lubrication?—A. Yes, sir.

Q. In your contract of April 1, 1901, from $1.80 to $2.50, as I understand you; is that right?—A. That is right.

Q. When was your next contract with the Chicago & Alton?—A. The next contract was for 12 months from April 1, 1902, at the same guaranties.

Q. And when was the next?—A. For 24 months from April 1, 1903, also at the same guaranties.

Q. And when was the next?—A. For 24 months from April 1, 1905, with the same guaranties and a sliding scale downward.

Q. What do you mean by that?—A. We offered an incentive to the railroad officials by giving them a sliding scale in the guaranty. This sliding scale is brought about by a decrease in the actual cost; that is, if they would assist us in reducing the cost, the guaranties would recede in proportion to the reduction in the actual cost of lubrication.

Q. Thus giving the road an incentive to work below the guaranty?—A. Yes, sir. And by that sliding scale the guaranties

7393 for the second year of the contract——

Q. Of which contract?—A. Of the contract beginning April 1, 1905—on passenger cars, had been reduced from 16.67 cents to 12, and the freight cars from 10 to 7 cents.

Q. That is to say, under this inducement which you held out to the road, by reason of that, in part at least, they succeeded in reducing the cost of passenger car lubrication from 16.67 to 12, and the freight car lubrication from 10 to 7?—A. Yes, sir.

Q. So the first contract price that you made with the Chicago & Alton was based upon 90 per cent of the cost of lubrication theretofore, and every contract which you have since made with the Chicago & Alton was based upon actual experience in the cost of lubrication during the period of each preceding contract?—A. Yes, sir.

Q. Taking into consideration, of course, the matter of the change of equipment?—A. Of equipment.

Mr. ROSENTHAL. That is all, on the Chicago & Alton, if you want to examine him on that.

By Mr. KELLOGG:

Q. For many years prior to the time you entered into a contract with the Alton, to wit, prior to 1900, you had sold Galena oils to the Alton road for their lubrication?—A. Yes.

Q. At the invoice price?—A. Yes.

Q. Without any guaranty as to the cost?—A. Without any guaranty, as shown by that sheet.

7394 Q. And without any Galena experts on the Alton road?—A. No; I think we had an expert there, but I am not certain about that.

Q. You don't know about that?—A. No.

Q. Now, during the years 1895, 1896, 1897, 1898, and 1899, up to September, 1899, you had sold them their oil at the invoice price and they had used it for lubricating their road?—A. Yes.

Q. I am not sure about that month being correct, but the years are substantially correct.

Mr. ROSENTHAL. Sold them all of their lubricating oils?

WITNESS. Yes.

Q. During those years their cost of lubrication was the lowest in the history of the Alton road, wasn't it; that is, lower than at any time since?—A. Yes.

Q. Very much lower?—A. (Referring to a paper.) Yes.

Q. In 1893, when the Alton began using the Galena oils on its line, its cost was higher, wasn't it?—A. Yes.

Q. And it had itself reduced the cost from $4.75 down to about $1.35?—A. Not itself.

Q. Well, you didn't have experts on the road?—A. We had experts there, but I am not sure whether we had one there during that entire period.

Q. You don't know whether you had any experts there during that entire period?—A. I am sure we had some experts——

Q. Well, do you know?—A. I said I was sure.

Q. You are sure you had an expert there all that time?—A. Not all the time. I am sure we gave them expert service.

7395 Q. After 1900 you took entire charge of the lubrication on the Alton road?—A. Yes.

Q. And their cost increased?—A. Increased; due to the conditions I have related.

Q. Well, we will see about those conditions. You based the contract of April 1, 1900, on the previous year?—A. I think that was the arrangement.

Q. Or a part of the previous year?—A. It was some months in that year; I have forgotten just which.

Q. During that year and before April 1, 1900, the cost had rapidly increased, hadn't it?—A. It was based upon some months during this period here [indicating on a paper].

Mr. ROSENTHAL. "This period" doesn't mean anything in the record.

Q. Some months during what period?—A. During the period from January, 1899, to April, 1900.

Q. Between September, 1899, and April, 1900, the cost had tremendously increased, hadn't it?—A. Yes.

Q. In other words, it had increased from $1.70 to $3.15?—A. From $1.70 to $3.15. The average from January, 1899, to 1900, I think, would give us the $1.80 rate for locomotives.

Mr. ROSENTHAL. The average from January, 1899, to April 1, 1900?

WITNESS. To April, 1900.

Mr. ROSENTHAL. You think gave you——

WITNESS. The rate of $1.80.

7396 Q. So that 90 per cent of the figure for that year was much more than 100 per cent of several previous years?—A. Yes; because the cost had started to go up, on account of new equipment and a change of conditions.

Q. Now, you say that one of the reasons of that increase was because Mr. Felton went on the line?—A. The change in management, and the superintendent of motive power having come from the Pennsylvania Railroad.

Q. I thought I understood you to say that Felton came from the Pennsylvania road.—A. No; I said Mr. Felton took charge at that time.

Mr. ROSENTHAL. I think perhaps you misspoke yourself in saying that Mr. Felton came from the Pennsylvania road.

Q. Well, Mr. Felton didn't come from the Pennsylvania road?—A. He had been, at one time, on the Pennsylvania road.

Q. Many years before?—A. Yes.

Q. He hadn't been on the Pennsylvania road for many years, had he?—A. For some time.

Q. Who was this man that came from the Pennsylvania road that was such a bad operator?—A. Mr. Mendenhall.

Q. When did he come from the Pennsylvania?—A. I couldn't tell you the exact month.

Q. How many years before?—A. He came during the period I suggested there.

Q. During what period?—A. I think about April, 1900. Mr. Turner knew exactly what time he took charge.

7397 Q. Did he come immediately from the Pennsylvania, or had he been with the Pennsylvania years before?—A. He came directly from the Pennsylvania to the Alton, and had been in their service for many years prior, on the Pennsylvania Railroad.

Q. Then he had nothing to do with the tremendous increase from September, 1899, to April, 1900, had he?—A. I can't say as to that.

Q. There was no change in equipment that would jump the expenses during that five months to any such extent as that, was there?—A. It was an accumulation of equipment having come in during that period.

Q. But they didn't hold all that equipment and start it all at once, did they?—A. No. I said it was an accumulation of equipment.

Q. Now, where was the Pennsylvania man? On the lines east of Pittsburg?—A. He was at Philadelphia. I think that was his location.

Q. On the lines east of Pittsburg. Well, your inference from that is that if he came from the Pennsylvania he is a bad manager?—A. I would think so.

Q. You think that is a badly managed road?—A. I think it is, so far as lubrication is concerned.

Q. Do you know whether he had anything to do with the lubrication on the Pennsylvania?—A. He was superintendent of motive power at that point.

Q. Now, what do you mean by the sliding scale? Just how
7398 is that arranged in the contract?—A. The sliding scale is arranged so that if by reason of cooperation with our expert the actual cost per 1,000 miles is reduced the guaranty will recede in proportion.

Q. That is, if the actual cost for the previous year, based on the invoice price, is reduced——A. Is reduced—the railroad company will get the benefit of it by a reduction in the guaranty.

Q. When was it that the Pennsylvania man left the Alton?—A. I couldn't say definitely.

Direct examination (resumed) by Mr. ROSENTHAL:

Q. Mr. Turner, your Chicago & Alton expert, has testified that Mr. Mendenhall came to the Alton in the fall of 1899. Do you know just when he did come?—A. No; I am not certain as to the exact time. I knew when he went to the Alton from the Pennsylvania, and knew when he left there; but I don't remember the date.

Q. So that whether it was the fall of 1899 or the spring of 1900, you don't know?—A. I don't know.

Q. I direct your attention next to the Chicago, Milwaukee & St. Paul. What record have you of the first contract with that road?—A. They began using our oils about thirty years ago. The first record we find of a guaranteed contract is for the use of engine lubricants only; that is, engine oil exclusive of the valve oil.

Q. What is the cost of engine oil as compared with the cost
7399 of valve oil?—A. It would be about equal, I should say. There might be a larger consumption of engine oil, in quantity, but the difference in price of the valve oil would offset that increase in quantity.

Q. I mean what is the difference in price between valve oil and engine oil?—A. The valve oil is 48 cents a gallon and engine oil 28 cents a gallon.

Q. Your first record of any contract is for engine oil?—A. Engine oil.

Mr. KELLOGG. Mr. Rosenthal, we make the same objection that I made to Mr. Steinbrenner testifying from information he received from the records of the company.

Q. What was that first guaranteed cost on engine oil alone?—A. We guaranteed that the cost for engine oil, per 1,000 miles run, would not exceed 79½ cents.

Q. And on passenger and freight cars—if you had any guaranty?—A. On passenger and freight cars, it was 22.12 per 1,000 miles, less 10 per cent, making the guaranteed rate 20½ cents.

Q. For what?—A. For passenger and freight cars.

Q. Have you any further records of the period covered by the eighties, down to say 1891, on the St. Paul road?—A. Those guaranties that I just mentioned continued to August 31, 1886. No further records can be found until January 1, 1891.

Q. Do you know whether or not the original contract there was taken upon the basis of 90 per cent of the previous cost to the railroad?—A. Are you referring to the contract beginning January 1, 1891?

7400 Q. No, sir; the earlier contract.—A. The earlier contract, so far as the records would show, I think, was taken on the basis of the previous cost.

Q. I think Mr. Roswell Miller so testified.—A. Yes.

Q. That is, on the basis of 90 per cent of the previous cost to the railroad?—A. On the basis of 90 per cent of the previous cost to the railroad.

Q. Now, your first contract made with the Chicago, Milwaukee & St. Paul was when, that is after, these contracts that were made in the eighties?—A. The first regular contract that we have on record is for 49 months from January 1, 1891, covering the entire cost of lubricating locomotives, at 90 per cent of the cost for the previous year.

Q. That is, under that 1891 contract, you agreed, for a period of 49 months, to lubricate their locomotives at 90 per cent of what it had previously cost the road?—A. Yes, sir.

Q. Did that result in any saving to the railroad company?—A. It resulted in a saving of 10 per cent.

Q. At once?—A. At once.

Q. Did you have any contract for passenger and freight car lubrication in 1891, with the St. Paul road?—A. I couldn't find a contract covering that period.

Q. When was your next contract made?—A. The next contract was for 36 months from February 1, 1895, on the basis of 90 per cent of the 12 months previous to the making of that contract.

Q. That is, the contract which you made with the St. Paul
7401 road February 1, 1895, was based upon 90 per cent of what it had the previous 12 months cost the St. Paul road?—A. Yes, sir.

Q. And what figures were arrived at on that basis?—A. The figures arrived at were, for locomotives, $1.498; passenger cars, 24.39 cents; and freight cars, 10.66 cents.

Q. For the first time there you have a record of a different cost for passenger and freight car lubrication?—A. Yes, sir.

Q. How long did you continue to operate under the 1895 contract?—A. For 36 months, or 3 years.

Q. And then what contract did you make?—A. Then we made a contract for 60 months from February 1, 1898, at, locomotives, $1.40 per 1,000 miles; passenger cars, 15 cents per 1,000 miles; and freight cars, 8½ cents per 1,000 miles.

Q. Why was the cost of lubrication in the February 1, 1908, contract reduced from $1.498 to $1.40?—A. That was reduced on account of the cost having been brought down to somewhere near that figure.

Q. And why was the passenger car lubrication cost reduced from 24.39 to 15 cents, and the freight from 10.66 to 8½?—A. Because we had succeeded in reducing the cost to approximately those figures, at that time.

Q. Do you know what the total saving was to the St. Paul road, per year, under the contracts from 1895 to 1903?—A. The reduction in these guaranties, as compared with the previous guaranties, resulted in a saving to the railroad company of $17,826.19 per year.

7402 Q. That is, figured on mileage basis?—A. On mileage basis.

Q. When was your next contract made with the St. Paul?—A. The next contract was for five years from February 1, 1903, at, locomotives, $1.70; passenger cars, 15 cents, and freight cars, 6 cents.

Q. Why was the increase made in locomotive lubrication from $1.40 under the 1898 contract, to $1.70 under the 1903 contract?—A. The locomotive guaranty was increased on account of their having put in during that previous 5-year contract a lot of larger power.

Q. But as a matter of fact was that increase in the cost of lubrication offset by a decrease in the cost of freight car lubrication?—A. It was about offset by the decrease of 2½ cents per 1,000 miles on freight car guaranty.

Q. Can you determine to what extent a reduction of 2½ cents per 1,000 miles, on freight car lubrication, on the St. Paul, during that period, was the equivalent (if it was the equivalent) of the increase of 30 cents in the cost of locomotive lubrication?—A. Yes, sir.

Mr. ROSENTHAL. I offer in evidence Defendants' Exhibit 33.

WITNESS. Taking the mileage of the Chicago, Milwaukee & St. Paul Railway for the 12 months ended January 3, 1903, a decrease of 2½ cents in the guaranty of freight cars would be equivalent to 29 cents per 1,000 miles on the locomotive mileage for that year.

Q. Now, your locomotive mileage was increased 30 cents?—A. Yes.

7403 Q. Your freight-car mileage—freight-car cost—was decreased 2½ cents?—A. Yes.

Q. And one is substantially the exact equivalent of the other, so far as net results to the road are concerned?—A. Yes.

Q. The passenger car cost remaining the same, 15 cents, under both contracts?—A. Fifteen cents.

Q. So that on the whole, taking into consideration all classes of lubrication, notwithstanding the increase in the weight of the loco-

motive equipment between 1898 and 1903 on the St. Paul, there was no increase in the actual cost of lubrication to the system?—A. No, sir.

Q. So far as guaranties, of course, are concerned.

Mr. ROSENTHAL. That is all on the St. Paul.

By Mr. KELLOGG:

Q. The Galena-Signal Oil Company has sold the lubricants to the Milwaukee road for about 30 years?—A. Yes.

Q. And the contracts that you have testified were entered into at 10 per cent below the cost to the Milwaukee road, were based upon the cost to the Milwaukee road buying your oils at the full invoice price?—A. Prior to the first contract mentioned.

Q. That is what I say.—A. Yes, sir.

Q. And you charge the same prices for those oils to-day as you did 30 years ago?—A. I think so.

Q. Now, you haven't the figures in your office showing the cost of those early years, have you, on which you based this statement
7404 of 90 per cent?—A. I have the figures for the guaranteed cost of 79¼ cents for the engine lubricants; I have also the figures for the 22.12 cents per 1,000 miles less 10 per cent for the passenger and freight cars; and also the figures for the locomotive guaranty for the contract beginning January 1, 1891.

Q. Well, that is the contract I meant to ask you about.—A. I have those figures.

Q. What I referred to—I should have been a little more definite—is that you have no figures, so far as the freight-car or passenger-car mileage is concerned, on which you based that.—A. There was no guaranty for passenger and freight cars, in that year.

Q. Did you have the actual figures of the cost for passenger cars and freight cars?—A. You are referring now to——

Q. To the year previous to 1891.—A. Yes.

Q. You had those figures in your office?—A. We had those figures.

Q. That is, 90 per cent of the cost to the Milwaukee road, buying your oils at the full invoice price for the previous year?—A. Yes, sir.

Q. And lubricating the road itself?—A. Yes, sir.

Q. Now, in 1895 you say you took the contract on the basis of 90 per cent of the cost for the year 1894?—A. Some months in that year; yes.

Q. You won't say you took the whole year?—A. I think it was a twelve-months' period prior to the making of that contract; what twelve months I can't say now.

Q. Do you know whether it was or whether it wasn't?—
7405 A. Yes; I do.

Q. You know it was the twelve months?—A. Yes.

Q. Do you have that from independent recollection, or from any figures?—A. From records in our office.

Q. Now, you took it at 10 per cent less than the invoice cost to the railroad in the previous year?—A. Yes.

Q. Not 10 per cent less than the actual cost?—A. The actual cost at invoice prices, yes; because there was no guaranty during that period.

Q. Yes; there was a guaranty for engine mileage.—A. For engine mileage; but that didn't affect the passenger and freight car mileage.

Q. You only reduced it from 1.55 to 1.49?—A. 1.498.

Q. Which was not 10 per cent?—A. It was, based upon some months in that period.

Q. But the guaranty applied for the whole year?—A. For the whole year; yes, sir.

Q. Now, 1.49 is not a reduction of 10 per cent from 1.58?—A. That 1.498, Mr. Kellogg, was a combination——

Mr. ROSENTHAL. I don't understand that you testified that you reduced the guaranty 10 per cent.

WITNESS. No. The guaranty was not reduced on locomotives 10 per cent. The actual cost was reduced.

Mr. ROSENTHAL. Ten per cent?

WITNESS. Ten per cent.

Q. Now, if your guaranty is the basis of the cost to the
7406 railroad company, you didn't reduce the cost 10 per cent, did you?—A. We did reduce the cost in passenger and freight cars and locomotives 10 per cent of the actual cost that existed prior to that time.

Q. But you kept no figures of the cost of the passenger and freight cars, did you?—A. Yes, sir.

Q. Now, the last contract, of 1903, you say there was a saving of $17,807.67; but that saving was over the year 1891, 12 years before, wasn't it, and not over the previous year?—A. It was on the basis of the 1895 contract. That took in both the passenger, freight, and locomotive service.

Mr. ROSENTHAL. Was it on the basis of the contract that existed 12 years before?

WITNESS. It was on the basis of the 1895 contract.

Mr. ROSENTHAL. Well, why don't you answer Mr. Kellogg's questions, and his exact question?

(Mr. Kellogg's last question was read to the witness.)

WITNESS. I didn't say it was for the 1891 contract. It was for the first contract in which locomotives, passenger and freight cars were figured.

Mr. ROSENTHAL. What contract?

WITNESS. The contract for three years from February 1, 1895.

Q. The reason I asked that question was because the note which you placed on this statement was that these guaranties resulted in reduction of cost to the railroad of $17,807.67 per year as com-
7407 pared with "first contract."—A. "First contract" would include the three guaranties.

Q. Well, it didn't say so; that is the reason I asked you. The first contract was 1891. That was eight years before, then.—A. Well, that is a pretty good reduction for eight years.

Q. That is only a reduction of about 10 per cent on the cost?—A. That is "per year." That is in one year. Each year of that 5-year contract they saved $17,000.

Q. Do you mean they saved just $17,807.67 every year for five years?—A. For five years, based upon the mileage of that contract.

Q. That is, you don't mean that they saved $17,807 more each year, but you mean that was the saving for the whole time, per year?—A. Per year, yes.

Q. It was not a reduction of $17,000 per annum?—A. Yes, per year.

Q. It wasn't $17,000 one year, and the next year $34,000, and the next year $51,000?—A. Oh, no. You certainly didn't understand me to say that.

Q. It was not a reduction each year over the previous year?—A. No; per year. It just says exactly what it means "per year."

Q. Then, there was no reduction in the five years?—A. In the five years it meant a reduction of over $85,000 to the railroad company.

7408 Q. Then, there was no reduction in the years 1902, 1901, 1900, over the previous year? There was no reduction in 1902 or 1901, over each of the previous years?—A. Yes, the previous guaranties will indicate that.

Q. Well, now, my dear sir, if the reduction was only $17,807.67 for the year 1896 over 1895, then the year 1897 over 1896 there was no reduction at all, was there?—A. 1897 as compared with 1906?

Q. 1896.

Mr. ROSENTHAL. Haven't you instituted merely an average there-gotten at merely an average year?

WITNESS. No, sir; I am comparing the results of the last contract with the results of the first contract in which we had a guaranty covering the three classes of service. I am not making any comparison with the years intervening.

Q. Then, there was no reduction from year to year intervening?—A. I think each of those years would show a reduction, because there was a lower guaranty in the intervening contract.

Q. Now, if you saved $17,807.67 in the year 1896 over the year 1895, then you didn't save anything in the subsequent years, did you?—A. Well, Mr. Kellogg, just read the note just previous to that one, in which I say that the contract from February 1, 1898, resulted in a saving of $17,826.19 per year, as compared with the next previous contract. The last contract is a further saving of $17,807 as compared with the first guaranty contract covering all services.

Q. Compared with the same year, it is not an additional saving?—A. No.

Q. Then, why didn't you say so?—A. I did so. You didn't want to understand me.

7409 By Mr. ROSENTHAL:

Q. Take the Chicago & Eastern Illinois Railroad next. Do you know how much of a system that is?—A. The Chicago & Eastern Illinois is a road running from Chicago south, I think, to Evansville

Indiana, and they have another branch south through Decatur to the Ohio River, I have forgotten to what point.

Q. And to St. Louis also?—A. And to St. Louis; yes.

Q. When did you first begin lubricating that road?—A. The first record we have is of a contract for four years from January 1, 1893, without guaranty.

Q. What do you mean by that?—A. That is, that they purchased our oils on a gallonage basis.

Q. And lubricated their own equipment?—A. Yes, sir.

Q. And when did you first enter into a contract with them?—A. Our first guaranteed contract was for 24 months from January 1, 1897, based upon 100 per cent of the previous cost for locomotives, 90 per cent of the previous cost for passenger cars, and 95 per cent of the previous cost for freight cars.

Q. That is to say, the first contract which you made with the Chicago & Eastern Illinois road you agreed to lubricate their locomotives for just what it had previously cost the road itself to lubricate its locomotives?—A. Yes.

Q. You agreed to lubricate their passenger cars for 90 per cent of what it had theretofore cost the road to lubricate its passenger cars?—A. Yes, sir.

7410 Q. And you agreed to lubricate the freight cars for 95 per cent of what it had theretofore cost the road to lubricate its freight cars?—A. Yes, sir.

Q. And that contract was made January 1, 1897, for a period of two years?—A. Two years; yes, sir.

Q. Now, you made another contract, on January 1, 1899, with that road, at the termination of the first contract, did you?—A. Yes, sir.

Q. When, if at all, had you installed your expert service on the Chicago & Eastern Illinois?—A. During the first contract, beginning January 1, 1897.

Q. I observe that under the second contract the guaranteed cost of lubrication was reduced from 1.833 to 1.80.—A. Yes.

Q. And passenger cars from .2304 to .23, and the freight cars from .1762 to .17?—A. Yes, sir.

Q. How do you account for that reduction?—A. We had evidently met the previous guaranties and simply cut off the fractions of the guaranty.

Q. You made a third contract with them, on January 1, 1902, at the termination of your 1899 contract. I notice that your passenger and freight car lubrication cost remained the same, but that the cost of lubricating the engines increased from $1.80 per 1,000 miles to $2.40 per 1,000 miles. How do you explain that, if you have any explanation?—A. The road had during the last year prior to the making of that contract installed a large number of heavy locomotives.

Q. Thus increasing the cost of locomotive lubrications?—A. Yes, sir.

7411 Q. So that that increase in the cost of locomotive lubrication from $1.80 to $2.40 was an increase that came with the

increase in the size of the equipment, and it was because of that?—A. Yes, sir.

Q. Your contract made January 1, 1905, maintained the same guaranties as were in your contract of January 1, 1902, did it?—A. Yes, sir.

Q. Notwithstanding the fact that your guaranties under your 1905 contract are the same as were your guaranties under your 1902 contract, has the railroad company made any saving in the actual cost of lubrication since the 1902 contract, and if so, how much?—A. The actual cost was reduced below those guaranties to the extent of $7,798.36 per year.

Q. Now, can you, from an examination of the Government exhibits already in evidence, being the résumé of the Chicago & Eastern Illinois contracts, point out to us just what the saving in actual cost to the Chicago & Eastern Illinois has been year by year?—A. You mean beginning with the $2.40 rate, Mr. Rosenthal?

Q. Yes, sir.—A. When the rate on locomotives was increased from $1.80 to $2.40, in 1902, the actual cost for the year 1902 had exceeded the combined guaranteed cost to the extent of $3.08.

Q. Have you got the number of the Government exhibit on that?—A. In Exhibit 419.

Q. That is shown in Exhibit 419?—A. 419, page 6.

Q. So, from an examination of Government Exhibit 419,
7412 page 6, it appears that, although you increased the cost for locomotive lubrication in 1902 from $1.80 per 1,000 miles, which had been the previous guaranteed cost, to $2.40 per 1,000 miles, freight and passenger car lubrication remaining the same, the actual cost under that contract as compared with the guaranteed cost was what?—A. Was practically the same, the excess being in all $3.08.

Q. That is, you mean that it cost the Galena Company only $3.08 more than the guaranteed cost?—A. Than the guaranteed cost.

Q. So that the quaranteed cost under that contract represented the actual cost, did it?—A. To the railroad company.

Q. To the railroad company?—A. Yes.

Q. The difference on a total of $27,358.76 only being $3.08?—A. $3.08.

Q. What was the saving the next year, the year 1903, to the railroad company?—A. For the year 1903, the guaranties being the same as the previous year, the cost to the railroad company was $31,850.51.

Q. Under the guaranty?—A. Under the guaranty.

Q. The actual cost was how much?—A. $32,144.68.

Q. So that under that increased guaranty the railroad company nevertheless saved on its actual lubrication cost $294.17?—A. Yes, sir.

Q. Now take the year 1904, where the contract guaranties remain just the same, do they not?—A. Yes.

Q. What was the actual cost for the year 1904, to the rail-
7413 road company?—A. The actual cost for the year 1904 to the railroad company was $27,681.31, taking the three classes of service combined.

Q. And that was what they actually paid to the Galena Company, was it?—A. Yes, sir.

Q. Now, under the guaranties of the Galena Company, as shown by its contract, if they had paid the guaranteed cost, what would they have paid?—A. They would have paid $32,576.50.

Q. As a matter of fact, however, they only paid $27,681.31, making a saving to the railroad company under the guaranty of how much?—A. Of nearly $5,000.

Q. Now, take 1905. What was the actual cost to the railroad company of its lubrication?—A. The actual cost to the railroad company for the year 1905 was $333,362.09.

Q. And if they had paid the guaranteed cost, how much would they have paid?—A. They would have paid $37,454.99.

Q. Making a saving to the railroad company in that year of about $4,000?—A. Of about $4,000.

Q. Now, take the year 1906, as shown by page 10 of Government exhibit 419. What was the actual cost to the Chicago & Eastern Illinois for that year?—A. $31,560.91.

Q. And if that road had paid the guaranteed cost, how much would it have cost them?—A. It would have cost the road, at the guaranteed rate, $39,370.65.

Q. Or, in other words, the railroad company saved that year about $8,000 on the guaranty?—A. About $8,000.

7414 Q. So, Mr. Steinbrenner, the actual cost to the railroad company is not necessarily shown by the guaranteed cost, is it?—A. No, sir.

Q. If, as a matter of fact, the actual cost of lubrication to the railroad company is less than the guaranteed cost, the railroad company only pays the actual cost?—A. Yes, sir.

Q. So that your guaranteed cost, which you insert in your contract, is inserted there merely as a measure of protection to the railroad company, guaranteeing the railroad company that it will not cost the road more than the figures named in the guaranty?—A. That is it, exactly.

Q. The ultimate settlement, however, between the railroad company and the Galena Company is based upon what it actually cost the railroad company to lubricate, irrespective of what the guaranty is, provided the actual cost falls below the guaranty?—A. Yes, sir.

Q. But if the actual cost of lubrication to the railroad company exceeds the guaranty, then the railroad company only has to pay the guaranteed cost?—A. The guaranteed cost. The guaranty fixes the maximum cost to the railroad company, but not the minimum.

Q. That is it exactly. The actual cost of lubrication may be any figure below the guaranteed cost, but in no event can it be anything higher than the guaranteed cost?—A. Yes, sir.

Q. So that a mere inspection of the figures shown by the guaranteed cost does not give us any true or accurate indication
7415 of what the real cost of lubrication may have been to the railroad company?—A. No, sir.

Q. And although in many instances there may be an increase in the guaranteed cost figures, it does not necessarily follow from that that there was an actual increase in the cost of lubrication to that railroad company?—A. Exactly.

Mr. KELLOGG. Mr. Rosenthal, I suppose you are familiar with the rule that it is not proper to lead a witness. You seem to be doing all the testifying here. Now, I don't want to object to it, but I do think you ought to come at least within a mile or two of that rule.

Mr ROSENTHAL. I quite agree with you on that, and I am only doing that for the purpose of making it more concise and shortening it, because I do not think there is any dispute between you and me concerning this principle which I have been elaborating here. If there was, I would not have asked any leading questions.

By Mr. KELLOGG:

Q. Your first contract with the Chicago & Eastern Illinois was made in 1896, wasn't it?—A. The first guaranteed contract began January 1, 1897.

Q. That is what I refer to. Previous to that time you had sold oil to the Chicago & Eastern Illinois without guaranties?—A. Yes.

Q. At full invoice price?—A. At full invoice price.

Q. And for how many years?—A. From January 1, 1893.

Q. Previous to that have you any record of selling them?—
7416 A. No, sir.

Q. You don't know whether you did or not?—A. I think not.

Q. From 1893 to 1897 did you have your experts there?—A. No, sir.

Q. And that cost that you took the contract on was 100 per cent of the locomotive cost, 95 per cent of the freight-car cost, and 90 per cent of the passenger-car cost?—A. Yes.

Q. And passenger cars are by much the smallest percentage of cost of the three?—A. That is, the cost of lubricating passenger cars is much the smaller in proportion to the entire lubrication.

Q. And the largest proportion is the engine lubrication?—A. Yes.

Q. And the next to that is the freight car?—A. Yes.

Q. Now, as a matter of fact, in spite of all of Mr. Rosenthal's explanations, which you assented to, the Chicago & Eastern Illinois paid 100 per cent or full invoice price for all the oil it used in the years 1897, 1898, 1899, 1904, 1905, and 1906, did it not?—A. 1897, 1898, 1899, 1904, 1905, and 1906; yes, sir.

Q. What is the answer?—A. Yes, sir.

Q. In other words, it paid 48 cents a gallon, 28 cents a gallon, and 18 cents a gallon?—A. Yes, sir.

Q. And you have never asked any road, ever, to pay any more than that, have you?—A. No, sir.

Q. So, whatever your figures may be, it paid for all the oil it had, the full invoice price for those years?—A. But it re-
7417 duced the quantity.

Q. It reduced the quantity?—A. Based upon the miles run.

Q. But, nevertheless, it paid the highest price that any road has ever paid you?—A. It paid the full invoice price.

Q. And it is on the gallons of oil you make your profit, isn't it?—A. And we expect that in every case.

Q. It is by selling oil you make your profit, isn't it?—A. Yes, sir.

Q. So you must be tolerably satisfied with the C. & E. I. profit?—A. We are satisfied when we get our full invoice price.

By Mr. CRAWFORD:

Q. Just explain a little more what you mean by saying that the payment of the full invoice price was due to the reduction in quantity.—A. The actual cost of oils consumed had fallen below the guaranteed cost.

Q. You said it was due to the reduction in the quantity. I direct your attention to that. Take the year 1903 and the succeeding years and consider the Government statements from the standpoint of quantity.—A. In the year 1903, at the invoice prices, the cost exceeded the guaranty because they did not get as much service out of the oils as they should have gotten, and which we accomplished in succeeding years.

Q. Let us take it a little more in detail. In the year 1903 it appears from the statement that the railroad used 21,622 7/12 gallons of valve oil.—A. Yes.

Q. And during the year 1904 it only used 17,437.07 gallons of valve oil?—A. Yes, sir; on an increased mileage.

Q. Notwithstanding the fact that in the year 1903 the locomotive mileage was 5,625,130, and in the year 1904, 6,087,984?—
7418 A. Yes, sir.

Q. So that, notwithstanding there was an increase in locomotive mileage, the valve oil used had diminished in the ratio of about 18 per cent?—A. Yes.

Q. That meant, did it not, that the railroad was running more miles to a given quantity of oil?—A. Yes, sir.

Q. That is to say, using the expression you have used, they were getting more miles out of a pint of oil?—A. Exactly. They were running their engines a greater distance with a pint of oil than they had during the year 1903.

Q. Now take up the car-oil point. In 1903 the statement shows that they used 50,509 15/16 gallons of car oil on their locomotives?—A. Yes, sir.

Q. And in the year 1904 they used 41,667.396 gallons of car oil on their locomotives?—A. Yes, sir.

Q. A difference of, approximately, 18 per cent, isn't it?—A. Yes.

Q. It was the same percentage, about, as on the valve oil?—A. Yes, sir.

Q. Notwithstanding that fact, the locomotive mileage in 1904 increased several hundred thousand miles over the year 1903?—A. Yes.

Q. Then, the effect of that is to show that the railroad was largely diminishing the quantity of oil which it used for a given mileage?—A. Yes.

Q. Is that what you mean by saying that the quantity wa
reduced?—A. The quantity was reduced by their having gotte
7419 a greater amount of service out of the oil that they did use.

Q. What relation is there between the fact that they appea to have paid the full invoice price in those later years and the fac just testified to, that they greatly reduced the quantity of oil?—A The prices remaining the same, they paid less for their service durin the later years than they did during the year 1903, where the cost ha exceeded the guaranty. Notwithstanding that they paid the ful invoice price in the years 1904, 1905, and 1906, and during the yea 1903 had a refund, the cost to the railroad company was less tha when it did get a refund.

Q. That is to say, they were getting their lubrication cheaper, were they?—A. Cheaper; yes, sir.

Q. Year by year?—A. Yes, sir.

Q. And the fact of their paying the full invoice price in those latte years was due, was it not, to the improvement in their performance?—A. To the improvement in their performance.

Q. The better their performance the more economical they were and the cheaper their lubrication the higher the apparent price per gallon?—A. Up to the full invoice price, yes.

Q. So that paying the full invoice prices indicated a high merit of performance, didn't it?—A. Yes, sir; an improvement in that performance.

By Mr. KELLOGG:

Q. The result of the contract is that you get the same price for
your oil to-day that you got thirty years ago, isn't it?—
7420 A. I think so; but the railroad company is getting its lubrication less, considering the mileage.

Q. The railroad is saving in the amount of oil it is using?—A. By reason of our assistance.

Q. Now, in all other products that a railroad uses in thirty years there has been a reduction all the way from 25 to 50 or 75 per cent, hasn't there?—A. In price, possibly.

Q. Steel rails, spikes, everything that a railroad uses, there has been a reduction in the price, hasn't there?—A. I am not sure as to that.

Q. You know, don't you, that in thirty years there has been a reduction in steel rails from $125 a ton to $25 a ton?—A. I presume so.

Q. And they are paying the same for oil to-day per gallon as they ever did?—A. They are paying the same per gallon when they pay the invoice price.

Q. And when you sell them oil that is what you get your profit out of?—A. Sure.

Q. You increased the guaranty from $1.80 to $2.40 because the cost to the railroad company for the amount of oil used was about $2.40.

wasn't it? The previous year, I mean.—A. Yes; I think that was about it.

Q. That was the reason of the increase?—A. That was the reason of the increase.

Q. So as to make the guaranty equal to the invoice cost?—A. To cover the increased cost due to the increase in power.

Q. That made the guaranty equal to the invoice cost, didn't it?—A. Practically so.

7421 Q. So that you got full invoice cost out of the company?—A. No.

Q. You practically got full invoice cost out of the company, didn't you?—A. Exactly.

Q. What?—A. Exactly.

By Mr. CRAWFORD:

Q. The reason why you sought and obtained that increase on the locomotives was the increase in the equipment, was it not?—A. The increase in the equipment.

Q. Both what had already taken place and what you knew was about to take place——A. Yes, sir.

Q. As to the increase in the equipment?—A. Yes.

Q. Mr. Kellogg asked you about the difference in price of things in thirty years. How has the cost of lubrication for railroads generally in thirty years operated? What has been the tendency—up or down or what?—A. The tendency has been to a constantly decreasing cost to the railroads.

Q. At the present time the cost of lubrication to railroads is very much less than it was thirty years ago?—A. Very greatly.

Q. Very much less than twenty years ago?—A. Yes; very much less than ten years ago, considering the difference in conditions.

Q. Even where you have been lubricating railroads for more than ten years their cost is very much less now than it was ten years ago in many cases, isn't it?—A. Yes.

7422 Q. Regarding this contract as a contract for the sale of lubrication services, then what you have sold has very greatly decreased in cost, hasn't it?—A. Yes, sir.

By Mr. KELLOGG:

Q. Now, you said from 1902 the increase was due largely to the increased equipment. What was the increased equipment of the C. & E. I. road?—A. I can't tell you from——

Q. You don't know, do you?—A. I think we have statements at Franklin indicating that.

Q. You don't know that you have?—A. I think we have.

Q. You think you have?—A. Yes.

Q. But you don't know you have?—A. Before we made any increase in the guaranties we used to get reports upon the equipment from our inspectors and we based our increases on that information.

By Mr. CRAWFORD:

Q. I now direct your attention to the Chesapeake & Ohio road. I notice that the first contract was taken for a period beginning January 1, 1895. Will you state your recollection as to that contract or your knowledge of that contract?—A. So far as my recollection goes and so far as the records in my office show that contract was taken for three years from January 1, 1895, at $1.50 for locomotives, 15 cents for passenger cars, and 7 cents for freight cars. There is nothing to indicate on what basis those figures were arrived at.

7423 Q. That contract continued how long?—A. That contract was for three years from January 1, 1895.

Q. And was succeeded by another contract of what term?—A. 5-year contract from January 1, 1898, with guaranties; locomotives, $1.40; passenger cars, 21 cents, and freight cars, 5.75 cents.

Q. Now, there appear to be several changes in those guaranties. Will you explain the reason for them?—A. The guaranty on locomotives was reduced from $1.50 to $1.40 because of the assurance that we receive from the railroad officials at that time that a cost of that kind could be met. The guaranty on passenger cars was increased from 15 to 21 cents because of the road having put into service a lot of 12-wheel trucks under their passenger cars in place of 8-wheel trucks. The guaranty on freight cars was reduced from 7 to 5.75 cents for the same reason that the locomotive guaranty was reduced.

Q. You said 12 and 8 wheel trucks. Don't you mean——A. 12 wheels to the car.

Q. The trucks themselves had 6 as against 4?—A. Yes; each truck had 6 wheels as against 4 wheels.

Q. But there is an increase on the whole car of from 8 wheels to 12 wheels?—A. Yes.

Q. That is accompanied by a larger weight in the car—a corresponding weight, isn't it?—A. Sometimes.

Q. I notice that you reduce the freight guaranty from 7 cents to 5.75 cents, or a reduction of a cent and a quarter; also that you increased the passenger guaranty by 6 cents and that you reduced

7424 the locomotive guaranty by 10 cents. Will you please figure out and tell me what the net result of that reduction was, bearing in mind the difference in the effect of one cent on freight as compared with the other services?—A. Taking the mileage into consideration, the reduction of 10 cents in locomotive service and the reduction of 1¼ cents in freight service and the increase of 6 cents in passenger service, the saving to the railroad company would amount to about $3,000 per year as compared with the first guaranty.

Q. You didn't quite get my question. Irrespective of the dollars and cents cost, I want to know how the guaranties themselves come out. Compare the freight and the passenger. How far does the reduction in the freight go to offset the increase in the passenger?—A. I want to look at the exhibit.

Q. That is, the year preceding 1898; in other words, the year 1897. Won't you figure that out during the recess, Mr. Steinbrenner?—A. Yes.

Q. And I will ask you another question. Explain how you arrived at that result of a saving on this contract of January 1, 1898, of $3,064.52 per year.—A. We took the mileage of the first year of the contract of January 1, 1898, and multiplied it by 1¼ cents, which was the reduction in freight-car guaranty; we also took the locomotive mileage for the first year of the January 1, 1898, contract and multiplied it by 10 cents per 1,000 miles, which was the reduction in the locomotive guaranty. Adding those two together it gave us the reduction in the two services combined. Then, taking the passenger car mileage and multiplying it by the increase of 6 cents
7425 gives us the increase in the guaranty of that service. Taking the difference between those two sums gives the saving or the difference between those guaranties in dollars and cents.

Q. That seems rather complicated. Wouldn't the same result be obtained by taking the mileage in the three classes, during the year 1898, and applying to that mileage, first, the guaranties under the previous contract, then the guaranties under the contract of January 1, 1898, and subtracting the total result of the one case?—A. That would give the same result.

Q. It seems to be simpler. When did you make your next contract with the Chesapeake & Ohio?—A. The next contract was for three years, from January 1, 1903.

Q. What were the guaranties in that case?—A. Locomotives $2, passenger cars 21 cents, and freight cars 6 cents.

Q. What was the reason for the change?—A. The increase in the locomotive guaranty was due to a great many larger engines having been put into service and smaller ones discarded. The same would apply to the freight cars, larger freight equipment coming into service during the previous contract.

Q. How long did that contract stay in force?—A. That was for three years from January 1, 1903.

Q. And then was succeeded by a contract for what?—A. By a contract for three years from January 1, 1906, with a guaranty of
7426 $2 for locomotives, 15 cents for passenger cars, and 7 cents for freight cars. The guaranty for passenger cars was again reduced from 21 cents to 15 cents, as we had succeeded in getting the cost down, I think, and the freight-car guaranty was raised one cent.

Q. What is the relation between freight car guaranty and passenger car guaranty? I mean to say, what does 1 cent on freight cars amount to when applied to passenger cars, on the average?—A. I think about 6 cents. One cent on freight cars is equivalent to about 6 cents on passenger cars.

(A recess was here taken until 2 o'clock p. m.)

Q. Mr. Steinbrenner, have you figured out that matter of freight and passenger guaranties under the contract of January 1, 1898, of the Chesapeake & Ohio?—A. I haven't completed the calculation yet.

Q. Can not you tell approximately for the purpose? There was a decrease in the freight guaranty of a cent and a quarter; there was an increase in the passenger car guaranty of 6 cents. My question was directed chiefly to the net result of those two changes. You have testified that 1 cent on freight cars was equivalent to about 6 cents on passenger cars.—A. I will have those figures in just a moment.

Q. I think the approximate figures would be sufficient for that.

Mr. KELLOGG. Oh, give it approximately.

A. (After figuring.) One cent on freight cars would be about 14 cents on passenger cars—mileage. It depends entirely
7427 on the different lines.

Q. You mean on this particular road?—A. On this particular road.

Q. At any rate, is it not a fact that the increase of 6 cents on the contract of January 1, 1898, in the passenger car guaranty was more than offset by the decrease in the freight car guaranty?—A. No. Taking the locomotive guaranty——

Q. I don't ask you about the locomotive guaranty at all. I ask you whether the increase in the passenger car guaranty of 6 cents is not more than offset by the decrease of a cent and a quarter on the freight car?—A. I think not.

Q. You just stated that 1 cent on the freight car was equal to 14 cents on passenger car.—A. Yes.

Q. A cent and a quarter, therefore, on freight cars would be equal to 17 cents on passenger cars, wouldn't it?—A. Yes.

Q. Very well. You have increased 6 cents on passenger cars.—A. Oh, I see the point now. The decrease in the freight guaranty of 1¼ cents more than offsets the increase of 6 cents on passenger cars.

Q. That is, it is more than equivalent to that, is it?—A. Yes, sir.

Q. Now, coming down to the contract of January 1, 1906, I don't remember whether I questioned you about that or not, but in that year you made a contract for 3 years, beginning January 1, 1906, in which the guaranties were $2 for locomotives, 15 cents for
7428 passenger cars, and 7 cents for freight cars. Is that correct?—A. Yes, sir.

Q. As compared with the guaranties of the preceding contract, the passenger car guaranty had decreased 6 cents and the freight car guaranty had increased 1 cent?—A. Yes, sir.

Q. How do those compare in equivalents?—A. I think that is about an equivalent. I have not worked it out.

Q. How did you arrive at that 1 to 14?—A. I took the mileage of 1898 into consideration.

Q. Supposing you take the mileage of the year 1905 and find out what the ratio was between the freight and passenger cars.—A. (After figuring.) That would be 1 to 13 in that year.

Q. Then, the change in freight car wouldn't——A. Be offset by the decrease in the passenger car.

Q. It would be partly offset?—A. Yes.

By Mr. KELLOGG:

Q. Mr. Steinbrenner, in this first contract, the Chesapeake & Ohio, that you testified to, you said in 1898 you reduced the engine cost from $1.50 to $1.40?—A. Yes, sir.

Q. Because you expected that the actual cost on the basis of the invoice price would meet that?—A. Yes, sir.

Q. As a matter of fact, the actual cost for the year 1897 was $2.30, wasn't it?—A. Yes, sir.

Q. How did you expect it would be brought down to $1.40, then?—A. We expected to meet that guaranty of $1.40.

Q. You didn't do it, did you?—A. No, sir.

Q. And you never have done it since?—A. No, sir.

7429 Q. And yet you gave the Chesapeake & Ohio a rate of $1.40 for years, while its actual cost was $2.05 to $2.44. Is that correct?—A. I presume so, if you took it from these statements.

Q. Yes; it is taken from those statements.—A. Just after that 5-year contract at $1.40 is when the change in conditions came in, and our expectations were not met.

Q. Then, during the five years you did let them have $1.40 contract while the actual cost was from about $2.05 to $2.44?—A. Yes, sir.

Q. Then you increased it to $2, didn't you?—A. Yes, sir.

Q. When the preceding year was $2.44? A. I haven't got the cost worked out on a mileage basis.

Q. It is exactly $2.4408.—A. I suppose that is correct.

Q. Then, you did give them a $2 contract when the actual cost of the preceding year was $2.44?—A. Yes.

Q. And the actual cost increased each year thereafter over the $2 contract?—A. Yes.

Q. Now, the fact is that in that instance you didn't base your guaranty on the previous cost at invoice price, did you?—A. We based our guaranty on our expectations.

Q. The real fact, Mr. Steinbrenner, was that the Union Petroleum Company made a bid and you were obliged to give them a lower contract?—A. We didn't know anything about that.

Q. You never heard they made a bid?—A. Not to the Chesapeake & Ohio.

Q. You didn't?—A. No, sir.

7430 Q. Didn't you hear of somebody making a bid to the Chesapeake & Ohio?—A. No, sir.

Q. You were not informed of that fact at all?—A. No, sir.

Q. That is one case where they got a cheaper rate than other roads, isn't it?—A. Yes; and a higher rate than some other roads.

Q. Oh, yes; of course. Higher than the Pennsylvania, for instance?—A. Higher than quite a number of others.

(The witness was withdrawn for the present.)

7431 T. B. COWPER, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. CRAWFORD:

Q. Your name is T. B. Cowper?—A. Yes.

Q. Where do you live?—A. Danville, Virginia, is my present home.

Q. What is your present business?—A. Auditor of the Danville & Western Railway.

Q. Where is the Danville & Western Railway?—A. The offices are at Danville, Virginia; the road runs from Stokesland, Virginia, to Stuart, Virginia, with a branch line from Leeksville Junction, North Carolina, to Leeksville, eight miles, and runs five miles over the Southern Railway tracks, Danville, Virginia, to Stokesland, Virginia.

Q. How long is the road?—A. 78 miles of its own, operating over five miles of the Southern Railway track.

Q. In addition, you mean?—A. Yes; 83 miles total operation.

Q. What are your duties as auditor?—A. Keeping all accounts and records, working up the agents, and in fact all the accounts; keep all the ledger accounts.

Q. How long have you been with that railway company?—A. Since January, 1905.

7432 Q. Mr. Cowper, have you made an examination to ascertain what the cost of lubricating the rolling stock of the Danville & Western Railway Company was in the year ending May 31, 1900?—A. Yes, sir.

Q. Will you produce the statement?

(Witness produces paper, and the same is marked "Defendants' Exhibit 48.")

Q. I hand you defendants' Exhibit 48, which is the statement produced by you, and ask you to explain the same.—A. This information was gotten from my voucher record of bills paid for the 12 months prior to June 1, 1900, showing the number of gallons, price, and amount paid for lubrication.

Q. Apparently these bills amount to $760.95.—A. Yes, sir.

Q. From that you make a deduction. Please explain the deduction.—A. That is the amount of lubricating oil that was on hand at the beginning of the year, June 1, 1900.

Q. That is, you have deducted from the total amount bought during that year what you find was on hand at the end of the year?—A. At the end of the year; yes, sir.

Q. Leaving a net amount of how much?—A. $668.95.

Q. Now, have you taken any account of oil that may have been on hand June 1, 1899?—A. No, sir; I couldn't find any record of that.

Q. Ignoring anything that may have been on hand June 1, 1899, what do the records show as the amount which the lubrication of the railway cost in the year ending May 31, 1900?—A. $668.95.

7433 Q. And, of course, if there was any on hand at the beginning of that year, that amount would have been increased, would it?—A. In addition to that; yes.

Q. Do you find any record of car and locomotive mileage prior to June 1, 1900? Did you search to see, and did you find any?—A. I looked through all the records I could find, and couldn't find where the mileage was shown anywhere.

Q. You mean prior to June 1, 1900?—A. Yes, sir.

Q. So you haven't included any mileage in your statement prior to that date?—A. No, sir.

Mr. CRAWFORD. I offer Defendants' Exhibit 48 in evidence.

Q. Beginning with June 1, 1900, how was your road lubricated thereafter?—A. Under contract with the Galena-Signal Oil Company.

Q. On guaranty contract?—A. Yes, sir.

Q. Have you prepared a statement showing the mileage and cost of lubrication to the railroad since that time?—A. Yes, sir.

Q. Will you please produce it?

(Witness produces paper, which is marked "Defendants' Exhibit 49.")

Q. Will you please explain this statement?—A. For the year June 1, 1900, to May 31, 1903, we were under contract with the Galena-Signal Oil Company to use their oils for lubrication, they guaranteeing the cost per thousand miles not to exceed for engines $1.85, passenger cars 11 cents, freight cars 11 cents.

Q. The second and third columns of this statement show
7434 the cost to the railroad, do they not?—A. Yes, sir.

Q. That is, the second column shows the total cost in dollars and cents per year?—A. Yes, sir.

Q. And the third column shows the cost per thousand miles?—A. Actual cost; yes, sir.

Q. Per 1,000 miles; is that right?—A. Yes, sir.

Q. Now, it is a fact, isn't it, that the total cost, as shown in the second column, has very much declined since the first year that the Galena took the contract?—A. Yes, sir.

Q. And has declined still more in comparison with the total cost of the year preceding June 1, 1900, as testified by you?—A. Yes, sir.

Q. Also it appears, does it not, that the cost per 1,000 miles has also greatly declined?—A. Yes, sir.

Q. These different guaranties that you have entered upon the statement at the different places are the guaranties of the different contracts with the Galena, are they?—A. Yes, sir.

Q. So that it appears, although the guaranties have greatly declined since your first contract, your actual cost per 1,000 miles has kept pace or has always kept below the guaranty?—A. Yes, sir.

Mr. CRAWFORD. I offer Defendants' Exhibit 49 in evidence.

Cross-examination by Mr. KELLOGG:

Q. Prior to making the contract with the Galena-Signal, did you use Galena oils?—A. I don't think so, sir.

Q. Do you know?—A. I looked over the records to get the
7435 information as to the quantity, and I didn't take a memorandum of the parties shipping the oil, but my recollection is that

most all of it was from other parties, and I don't remember of seeing any from the Galena-Signal.

Q. You don't remember?—A. No, sir.

Q. Do you remember who the other parties were?—A. I can't recall the names.

Q. You don't know anything about what system they had for lubricating the road at all?—A No, sir.

Q. Or what kind of oil they used on the engine?—A. You mean prior to the contract?

Q. Yes.—A. No, sir.

Q. You don't know anything about it?—A. No, sir.

Q. It would appear here that they didn't have any engine at all, in this statement, but all valve oil and cylinder oil.—A. I don't know about that, sir.

Q. If they were using valve and cylinder oils to lubricate their engines, it would be rather expensive, wouldn't it?—A. Well——

Q. There doesn't appear to be any engine oil in your cost.—A. What is that 20 cents?

Q. That is car oil. You don't know what they were using?—A. I don't know anything about it.

Q. You don't know whether they have any system of caring for lubrication, or whether the men help themselves?—A. I can't say, sir; I wasn't there, to begin with.

7436 (The hearing was then adjourned until Monday, June 22, 1908, at room 722, custom-house, New York City.)

7437 ROOM 722, CUSTOM-HOUSE, NEW YORK CITY,
Monday, June 22, 1908—10.30 a. m.

Pursuant to adjournment, the parties met before the special examiner, Hon. Franklin Ferriss, at the above time and place, and by consent of all parties an adjournment was taken to the morning of Tuesday, June 23, 1908, at which time the following testimony was taken:

Present: On behalf of the petitioner, Messers. Frank B. Kellogg, Charles B. Morrison, and J. Harwood Graves; on behalf of the defendants, Mr. Moritz Rosenthal, Mr. F. L. Crawford, and Mr. W. Cleveland Runyon.

C. C. STEINBRENNER, recalled on behalf of the defendants, testified as follows:

Mr. ROSENTHAL. So as to avoid copying any statutes into the record, I want to call the attention of the court to the United States Statutes at Large, Forty-first Congress, 1869 to 1871, volume 16, page 470, chapter 105, an act approved March 3, 1871, relating to the celebrating of the one hundredth anniversary of American independence, at Philadelphia; and also to the United States Statutes at Large, Forty-second Congress, 1871 to 1873, volume 17, page 203, chapter 259, approved January 1, 1872, an act relating to the same cen-

7438 tennial, and particularly to those portions of the acts creating the United States Centennial Commission and authorizing

said Commission to grant awards and certificates of merit in connection with the exhibits.

Direct examination (resumed) by Mr. ROSENTHAL:

Q. Mr. Steinbrenner, did the Galena Company receive any medal and certificate, or either, from the Centennial Exhibition held at Philadelphia in 1876?

Mr. KELLOGG. Objected to as immaterial and irrelevant.

A. Yes.

Q. What did it receive?—A. It received a certificate of award, based upon the merits of its oils on exhibition at that time.

Mr. KELLOGG. That is objected to as secondary evidence.

Q. Have you that certificate with you?—A. Yes, sir.

Q. Produce it, please.

(The witness produces a framed certificate.)

Mr. ROSENTHAL. I offer it in evidence.

Mr. KELLOGG. Same objection.

Mr. ROSENTHAL. I suppose you have no objection to a copy being substituted in place of the original?

Mr. KELLOGG. No, sir.

(The copy to be substituted was considered, marked "Defendants' Exhibit 50.")

7439 Q. I show you defendants' Exhibit 51. Please state what that is.—A. This is a medal awarded by the United States Centennial Commission of 1876 on the merits of Galena oil on exhibition at that place.

Mr. ROSENTHAL. I offer in evidence defendants' Exhibit 51, and I will substitute a copy for it.

Mr. KELLOGG. That is objected to, but there is no objection to substituting a copy.

Mr. ROSENTHAL. I call the attention of the court to the United States Statutes at Large, Forty-third Congress, session 1, 1874, volume 18, part 1, page 76, chapter 208—an act to authorize medals commemorating the one hundredth anniversary of the first meeting of the Continental Congress and of the Declaration of Independence, and providing for the making of said medals by the United States mint; the act being approved June 16, 1874.

Q. Did the Galena Company also exhibit at the World's Columbian Exposition at Chicago in 1893?—A. It did.

Mr. ROSENTHAL. I also call the court's attention to the United States Statutes at Large, Fifty-first Congress, 1889 to 1891, volume 26, page 62, chapter 156, approved April 25, 1890, the same being an act to provide for celebrating the four hundredth anniversary of the discovery of America by Christopher Columbus, by holding an international exhibition of arts, industries, and manufactures at the city of Chicago; particularly to section 6 of said act, authorizing the commission created under said act to award premiums to exhibitors.

7440 Q. I show you defendants' Exhibit 52, the same being the bronze medal issued by the World's Columbian Exposition; and defendants' Exhibit 53, being also a bronze medal granted by the

World's Columbian Exposition. Please state what defendants' Exhibits 52 and 53 are.—A. Defendants' Exhibits 52 and 53 are medals awarded by the United States Government for the Columbian Exposition held in Chicago in the year 1893, covering the merits of Galena products. One is for the Galena Oil Works, Limited, and the other for the Signal Oil Works, Limited.

Q. And both of them now operated under one management and as one corporation by the Galena-Signal Oil Company?—A. Yes, sir.

Mr. ROSENTHAL. I now ask that copies be substituted for the originals.

Mr. KELLOGG. The evidence is objected to, but we consent that copies be substituted.

Q. The medal granted the Galena Oil Works covered, as I understand it, the exhibit of Galena engine, coach, and car oil; and that granted the Signal Oil Works covered the exhibit of Perfection signal oil, did it not?—A. Yes, sir.

Q. Were there also certificates of merit issued at the same time, in connection with such medals?—A. Yes.

Q. Have you those certificates here?—A. I have.

Q. How many are there?—A. There are two; one for the Galena Oil Works, Limited, and one for the Signal Oil Works, Limited.

Mr. ROSENTHAL. I ask that they be marked, respectively, "Defendants' Exhibit 54" and "Defendants' Exhibit 55." I offer
7441 them in evidence, and ask that copies be substituted therefor.

Mr. KELLOGG. They are objected to as irrelevant and immaterial, but we consent that copies may be substituted.

Q. Calling your attention especially to the language of the award in connection with the certificate issued by the Columbian Exposition to the Galena Oil Works, will you please read into the record the exact language of that award?

A. "The United States of America

"By Act of Their Congress Have Authorized

"THE WORLD'S COLUMBIAN COMMISSION

"at the international exhibition held in the city of Chicago, State of Illinois, in the year 1893, to decree a medal for specific merit which is set forth below over the name of an individual judge acting as an examiner, upon the finding of a board of international judges, to

"GALENA OIL WORKS,

"Limited,

"Franklin, Penna.

"EXHIBIT: GALENA ENGINE, COACH, AND CAR OILS.

"AWARD

"For a series of patented, blended petroleum oils known as Galena Engine Oil, Galena Coach Oil, and Galena Car Oil, constituting a higher class of railroad lubricants than the cheap black oils. They

contain a metallic base in perfect solution, whose function is the same as that of the mineral ingredients in the greases known as cooling compounds; that is, the bearing surfaces are polished or ground by the action of these metallic ingredients to a condition which insures the most perfect lubricating action of the fluid elements of the oil. For a series of patented, blended petroleum oils for railroad lubrication that contain mineral ingredients which polish or grind the bearing surfaces automatically; that are free from all substances which can corrode metals; that do not gum on the bearing surfaces; that are uniform in quality; that have been well-nigh universally adopted in the United States as high-class lubricants for railway machinery, and whose use has resulted in great economies in the consumption of oil for such service.

"N. B. CRITCHFIELD,
"*President Departmental Committee.*
"GEO. R. DAVIS,
"*Director General.*
"T. W. PALMER, *President,*
"*World's Columbian Commission.*
"JNO. T. DICKINSON, *Secretary,*
"*World's Columbian Commission.*"
"JOS. D. WEEKS,
"*Individual Judge.*
"JOHN BOYD THACHER, *Chairman,*
"*Executive Committee of Awards.*

7442 Q. Where did it come from? What does it say at the bottom?—A. "Engraved and printed by the Bureau of Engraving and Printing, U. S. Treasury Dept."

Q. Did the Galena-Signal Oil Company also exhibit at the Louisiana Purchase Exposition held at St. Louis in the year 1904?—A. It did.

Mr. ROSENTHAL. I call the attention of the court to United States Statutes at Large, 56th Congress, 1899 to 1901, volume 31, page 1440, chapter 864, approved March 3, 1901, the same being an act for celebrating the 100th anniversary of the purchase of the Louisiana territory by the United States, by holding an international exhibition of arts, industries, manufactures, etc., in the city of St. Louis, in the State of Missouri, and authorizing the creation of a commission and giving said commission power to grant awards, etc.

Q. I show you defendants' Exhibit 56, and ask you what that is?—A. This is a grand prize issued by the Louisiana Purchase Exposition.

Q. A grand prize?—A. A grand prize.

Mr. ROSENTHAL. I offer it in evidence, and ask that a copy be substituted.

Mr. KELLOGG. Objected to as immaterial. We consent that a copy may be substituted.

Q. I show you defendants' Exhibit 57 and ask you what that is.—A. This is a certificate issued by the United States of America, Universal Exposition, St. Louis, commemorating the acquisi-
7443 tion of the Louisiana territory. "The international jury of awards has conferred a grand prize upon Galena-Signal Oil

Company, railway, illuminating, and lubricating oils." Signed by "F. J. Skiff, director of exhibits; William A. Smith, chief of department of transportation; David R. Francis, president Louisiana Purchase Exposition Company; Walter B. Stevens, secretary."

Mr. ROSENTHAL. I offer that in evidence, and ask that a copy be substituted.

Mr. KELLOGG. Same objection. The same agreement, that a copy may be substituted.

Q. Did the Galena-Signal Company also exhibit at the Pan-American Exposition held at Buffalo in the year 1901?—A. It did.

Q. Did the company receive any award of merit there?—A. It did; both a certificate and medal.

Q. A gold medal?—A. Yes.

Q. I show you defendants' Exhibit 58. What is that?—A. A medal of award, issued by the Pan-American Exposition to the Galena-Signal Oil Company.

Mr. ROSENTHAL. I offer it in evidence, and ask that a copy be substituted.

Mr. KELLOGG. The same objection, and same consent.

Q. Was there also a certificate issued in that same connection?—A. Yes, sir.

Mr. ROSENTHAL. I offer that in evidence as defendants' Ex-
7444 hibit 59, and ask that a copy be substituted. I call the court's attention to a joint resolution of the 55th Congress, section 2, resolution 58, of July 8, 1898, found in the United States Statutes at Large, volume 30, page 752, authorizing the making of medals, appropriate devices, emblems, and inscriptions, commemorative of the Pan-American Exposition, and to be used in connection with awards to exhibitors, said medals to be made at the United States Mint; and also a reference to the United States Statutes at Large, 55th Congress, section 3, 1899, chapter 420, March 3, 1899.

Q. Did the Galena-Signal Company exhibit at the Jamestown Exposition in the year 1907?—A. It did.

Q. Did you get any medals and certificates there?—A. We have a medal; and a certificate has been awarded, but it has not yet reached us.

Q. Of the same general character as these other medals and certificates?—A. Yes, sir.

Q. I show you defendants' Exhibit 60. Please state what that is.—A. This is an exact copy of a voucher issued by the Isthmian Canal Commission at Washington in payment of oils furnished by the Galena-Signal Oil Company for use in lubricating the Isthmian Canal machinery.

Q. Where is the original of which that is an exact copy?—A. The original is returned to the Department at Washington.

Q. I notice that there are certain paragraphs in red ink. What does that signify?—A. The red ink figures and paragraphs cover typewritten items in the original voucher. The black ink
7445 are the regular printed paragraphs on the form issued by the Commission.

Mr. ROSENTHAL. I offer that in evidence, as defendants' Exhibit 60.

Mr. KELLOGG. Objected to as irrelevant and immaterial.

Mr. ROSENTHAL. And I call the court's attention particularly to the first page of said exhibit and to the paragraph in red ink, as follows: "Purchased in open market without advertising, it being impracticable to secure competition, because Galena perfection oils are certified by the officials on the Isthmus as the only oils that will meet the requirements of the service, and manufactured only by the Galena-Signal Oil Company;" and also the red ink paragraph on the last page of said exhibit, reading as follows, to wit: "Galena perfection oils are certified by the officials on the Isthmus as the only oils that will meet the requirements of the service and manufactured only by the Galena-Signal Oil Company."

Q. When you were last on the stand, Mr. Steinbrenner, you testified concerning the original contract made with the Atchison, Topeka & Santa Fe, dated in April, 1884. Have you since you were last upon the stand examined the records of the Galena-Signal Company and obtained therefrom a copy of said original agreement?—A. Yes.

Q. I show you defendants' Exhibit 61, and ask you if that is the copy.—A. Yes.

7446 Q. Where did you get that copy from?—A. That copy was found in the files in my office at Franklin, Pennsylvania.

Q. And who is Mr. Speare?—A. Mr. Speare is now in charge of what was formerly Speare, Gregory & Company, by whom this contract was made with the Santa Fe as agent for the Galena Oil Works.

Q. That is, Speare, Gregory & Company were acting as agents for the Galena Oil Works in the making of this contract?—A. Yes, sir.

Mr. KELLOGG. Mr. Speare is now in your employ, is he?

WITNESS. Yes, as our agent in Boston.

Mr. KELLOGG. His father was formerly the Speare——

WITNESS. Speare, Gregory & Company; and he was in the employ of Speare, Gregory & Company at that time.

Mr. KELLOGG. This contract is part of your records?

WITNESS. Yes, sir.

Mr. KELLOGG. And Speare, Gregory & Company were selling oil to the Santa Fe Company.

WITNESS. As agents for the Galena Oil Works.

Mr. KELLOGG. And had been so selling about how long prior to 1884?

WITNESS. I can't tell you that. I don't recollect.

Mr. KELLOGG. Can't you tell from the general information in your office?

WITNESS. No, I don't think I could, without making inquiry.

Mr. KELLOGG. Well, a year before, hadn't they?

7447 WITNESS. Possibly.

Mr. KELLOGG. They were the agents selling this oil when this contract was made?

WITNESS. Yes.

Mr. KELLOGG. And had been for some time before?

WITNESS. I can not tell you how long.

Mr. KELLOGG. It appears that the Santa Fe were using your oils.

WITNESS. They were acting as our agents at that time.

Mr. KELLOGG. Was Mr. Lewis R. Speare with his father at the time this contract was made?

WITNESS. Yes, sir.

Mr. KELLOGG. How many years had Speare, Gregory & Company been handling your oils?

WITNESS. How many years had they?

Mr. KELLOGG. Yes, at that time.

WITNESS. Not very long.

Mr. KELLOGG. Well, how long?

WITNESS. I think this was the first contract they made for us.

Mr. KELLOGG. That is not the question. How long had they been selling your oils?

WITNESS. I don't know.

Mr. KELLOGG. Would Mr. Speare know?

WITNESS. I presume he would.

7448 Mr. KELLOGG. Well, I think Mr. Speare had better testify. I am perfectly willing, ordinarily, to admit a copy of a contract. But when Mr. Steinbrenner speaks from others' information, I wish he could give the whole information.

WITNESS. I am giving all the information I have, Mr. Kellogg.

Mr. ROSENTHAL. All right, we will have Mr. Speare's testimony.

Mr. KELLOGG. If Mr. Steinbrenner will look it up and tell me how long they had been selling that oil before 1884, I will consent to it.

Mr. ROSENTHAL. Whether the Santa Fe had been using Galena oils prior to the year 1885 or not, you don't know, as I understand?

WITNESS. I don't know, because I was not with the company at that time; but, as I understand, they did not. This is a contract taken on the basis of 90 per cent of what it had been costing them for other oils; that is my understanding.

Mr. KELLOGG. But you have no personal knowledge of that subject at all?

WITNESS. I was not with the company at that time.

Mr. KELLOGG. You have no personal knowledge of it?

Q. On the first page of defendants' Exhibit 61, that being the Santa Fe contract, I find this paragraph: "The party of the first part guarantee to the party of the second part a saving of ten per cent in the cost of lubricating its equipment of locomotives and cars during the year ending May 1, 1885; this guarantee to be based upon 7449 the cost of the reduced oils that have been used by the party of the second part during the twelve months ending May 1884." Do you know what the phrase "reduced oils" means?—A. Yes.

Q. What does that mean?—A. That means oils that have passed through the refinery, and the residuum or cheaper grade of lubricating oil sold for lubricating purposes.

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Q. Could the reduced oils have been sold by the Galena Company?—A. No.

Q. So that manifestly this contract, in so far as the 90 per cent guaranty is concerned, and in so far as that guaranty being based upon the cost of oils theretofore used by the Santa Fe is concerned, related to oils which the Santa Fe obtained from companies other than the Galena?—A. Yes.

By Mr. KELLOGG:

Q. You have no personal knowledge as to what oils they were using prior to 1885?—A. No, sir, excepting as I stated in that proposition.

Q. You have no knowledge of the contract?—A. No, sir.

Q. The reduced oils you say are a residuum, or whatever you call it——A. The lubricating or petroleum oils having passed through the refinery and the cheaper grade of oil left after the volatile qualities have been taken out of it.

Q. Your petroleum stocks are all made in the same way, aren't they, from the crude?—A. I don't know how it is made.

Q. How did you happen to know so much about reduced oils if you don't know anything about how yours were made?—A. I have made some inquiry as to what reduced oil is.

7450 Q. And you say it is ordinary petroleum put through a refinery?—A. A refinery, yes sir.

Q. And it is what is left after the refined oils are taken out?—A. Taken out. That is what I call reduced oil.

Q. Isn't it a fact that your own are made in the same way?—A. I don't know how it is made.

Q. You don't know anything about how your oils are made?—A. No.

Q. You know nothing about the composition of them?—A. No.

Q. You never inquired into that at all?—A. No.

Q. But you did inquire into reduced oils?—A. That is a secret process, and we are not allowed to know anything about it.

Q. There is nothing secret about the reduction of stocks into lubricating oil, is there?—A. I don't know anything about that.

Q. Doesn't every lubricating oil man in the country know just how it is done?—A. No.

Q. Then you don't know anything about the composition of these oils whatever?—A. No, sir.

Q. You don't know what oil the Santa Fe Company was using prior to 1885?—A. I know it was using reduced oil.

Q. How do you know?—A. By that contract.

Q. You only know from hearsay?—A. Know from that contract.

Q. You don't know anything about the contract, either?—

7451 A. I know that contract was made at that time.

Q. Well, now, let us see if you do. That is a copy of a contract you found in your office?—A. Yes.

Q. You were not there at that time?—A. No.

Q. And you had no personal knowledge of it?—A. No.

Q. You don't know whether the Santa Fe ever signed it or whether they didn't sign it, except from hearsay, do you?—A. Just what I have learned from Mr. Speare.

Q. Very well, then; you have no personal knowledge whatever of the subject?—A. Well, I know from what I have seen.

Mr. ROSENTHAL. This is hardly fair cross-examination, in view of our understanding here, that we are trying to shorten this testimony by having him testify to much that is hearsay, with the understanding that you have the opportunity to verify it.

Mr. KELLOGG. I shall not object to it at all, except this——

Mr. ROSENTHAL. If the cross-examination is going to be conducted upon the basis that Mr. Steinbrenner is testifying to much that is hearsay, we will have to proceed along entirely different lines; that is all.

Mr. KELLOGG. I have no agreement that Mr. Steinbrenner can testify to anything in the world that he wants to, from hearsay. There is no such understanding at all—with you or any other person in this case.

Mr. ROSENTHAL. No, you haven't any understanding with
7452 me at all in connection with that, excepting as we go along, as I understand it.

Mr. KELLOGG. I have let Mr. Steinbrenner put in copies of everything, and have not objected; but in this matter of this contract he swears he knows that contract was made, and he doesn't know anything about what they were doing just previous to that. I said you had better bring the man who does know, then.

Mr. ROSENTHAL. Yes; but your cross-examination covers a much wider range than that which relates merely to that objection. What I am trying to get at is this: I don't pretend that Mr. Steinbrenner has absolute personal knowledge of much that he is testifying to historically, but whatever he does testify to historically may be verified by records which are there in the office and which can be produced if you will indicate as we go along just what you may want us to produce; and, if necessary, we will follow that up by calling the particular man or men who have personal knowledge of those particular things concerning which you want more information.

Mr. KELLOGG. Well, I have not objected, through days of this testimony, to anything of that kind.

Mr. ROSENTHAL. Except by the character of the cross-examination.

Mr. KELLOGG. I have made no objection to his testifying to secondary evidence at all, excepting in this one instance, that I know of.

7453 (A paper was marked "Defendants' Exhibit 62.")

Q. Now, on defendants' Exhibit 62, you have already testified concerning the Atlantic Coast Line, the Atchison, Topeka & Santa Fe, and the Ann Arbor. We will pass the Alabama & Vicksburg for a moment and take up the Boston & Maine. Did you have anything

to do with the making of the first contract with the Boston & Maine?—A. I arranged a figure under that contract.

Q. When was the first contract made?—A. The first contract was made for 24 months commencing September 1, 1897.

Q. And what was the contract, in so far as the guaranteed cost was concerned, in its relation to prior cost?—A. The guaranteed cost was based upon 100 per cent of the previous cost for lubricating locomotives, passenger and freight cars.

Q. And where did you get your figure shown in the left-hand column—1.90315 and 1.95?—A. From the railroad company.

Q. Were those figures (1.90315 and 1.95) furnished you by the railway company?—A. Yes.

Q. When?—A. When the contract was made.

Q. When the contracts were made. They relate to two contracts.—A. That 100 per cent refers to the 1.90315.

Mr. ROSENTHAL. Strike out "1.95" in that question, Mr. Taylor, and then we will simplify that.

Q. And the 1.90315 represents, does it, a figure that was agreed upon by you and the railroad company as being 100 per
7454 cent of the cost?—A. Exactly.

Q. And that was thereupon incorporated into the contract?—A. That was incorporated into the contract.

Q. When did you make your next contract?—A. The next contract was for 12 months beginning September 1, 1899.

Q. For how much?—A. At 1.95 for locomotive mileage, covering the lubrication of locomotives, passenger and freight cars.

Q. And when was the next contract?—A. The next contract was for 12 months beginning September 1, 1900, at, locomotives, 1.2355; passenger cars, 18 cents, and freight cars, .0646.

Q. Under your 1900 contract I find a notation, "This guaranty equivalent to previous one." Will you explain that?—A. During the first two contracts the railroad company did not keep any mileage of passenger and freight cars, consequently their records of cost of lubrication were based upon locomotive mileage only, covering cost of oils consumed in the three classes of service. With the beginning of the contract September 1, 1900, they began to keep passenger and freight car mileage, consequently the figures were divided, covering the three classes of service, and those figures are equivalent to the 1.95 rate on locomotive mileage.

Q. Your next contract, made September 1, 1901, I notice that the locomotive guaranty is increased from 1.2355 to 1.50. Why was that increase made?—A. That increase was allowed on ac-
7455 count of the railroad having put into the equipment larger engines during the period of the preceding contract.

Q. And there was another increase in the contract of September 1, 1902. Why was that increase made—to 1.60?—A. That increase was again made on account of additional larger engines having been put in during the preceding contract.

Q. Under the contract of September 1, 1904, I find the notation, "This contract extended indefinitely." What does that mean?—A. That contract is still in force.

Q. Without any definite terminating period?—A. Yes; there being negotiations now for a change in guaranty, on account of the experience we have had in the last contract.

By Mr. KELLOGG:

Q. Now, Swan & Finch were at the time your agents in Boston, were they not?—A. In New York. They were our agents so far as the B. & M. and Maine Central were concerned.

Q. They made the contracts with and sold the oil to the Boston & Maine and the Maine Central railroads during these years?—A. Yes.

Q. Swan & Finch are agents of the Standard Oil Company in New York, are they?—A. I don't know.

Q. You know they are connected with it?—A. I don't know that.

Q. How long have you known them?—A. I have known them since our negotiations for the Boston & Maine business.

Q. In 1897?—A. Yes.

7456 Q. At that time they were selling Galena-Signal oils, were they not?—A. I think not.

Q. Didn't they sell the Boston & Maine Railroad its lubricating oils, prior to 1897?—A. No; not to my knowledge.

Q. Well, do you know they didn't?—A. I know they didn't.

Q. You know they did not?—A. I know they did not.

Q. You know that they did not sell the Boston & Maine Railroad——A. Pror to 1897, Galena oils.

Q. Did they sell for the Vacuum Company?—A. I don't know.

Q. They didn't sell any oils for the Galena-Signal Oil Company or any of its companies prior to 1897?—A. Not prior to 1897, no.

Q. To anybody?—A. I don't know. I am testifying now as to the Boston & Maine.

Q. How do you know they didn't?—A. Because I handle the accounts.

Q. You handled all the accounts?—A. Yes.

Q. And no Galena-Signal oils were sold to the Boston & Maine prior to 1897?—A. Not by Swan & Finch.

Q. Well, by anybody?—A. By anybody.

Q. At all?—A. No.

Q. You absolutely know that?—A. I know that.

Q. Very well. You don't know whether the Vacuum Oil Company's oil was sold or not?—A. I have no knowledge as to that.

7457 Q. Now, as a matter of fact, didn't Swan & Finch have a contract with the Boston & Maine Railroad, to furnish lubricating oil, since 1890?—A. I don't know.

Q. You don't know anything about it?—A. I don't know anything about Swan & Finch, prior to 1897.

Q. Do you swear that you don't know that Swan & Finch are connected with the Standard Oil Company as agents?—A. Yes.

Q. And you never heard of it?—A. I am not testifying as to what I heard; I am testifying now as to what I know.

Q. No; but you have been testifying for Mr. Rosenthal as to what you have heard.

Mr. ROSENTHAL. Not at all.

WITNESS. You are mistaken.

Q. Did you ever hear they were connected?—A. I won't say that.

Q. You decline to answer?—A. Yes.

Q. As a matter of fact, haven't you been informed many times that Swan & Finch for many years have been connected with the Standard Oil Company?—A. I have heard it, just the same as I hear a great many other things.

Q. When did you first hear of it?—A. I don't know.

Q. Didn't you hear it prior to 1897?—A. No.

Q. Never heard it prior to 1897?—A. No. Didn't know them prior to that time.

Q. You have heard it since, have you?—A. I have heard it indirectly, yes.

7458 Q. Whom did you hear it from?—A. I don't know. I may have read it in the paper.

Q. Where is their office?—A. In New York, I understand.

Q. Ever been in it?—A. No.

Q. Standard Oil building?—A. No.

Q. Don't know where it is?—A. I don't know where it is.

Q. Do you know any member of the firm?—A. Yes.

Q. Whom?—A. Mr. Peabody.

Q. How long have you known him?—A. Some years.

Q. How many years?—A. I don't know.

Q. In 1897 Swan & Finch were agents selling lubricating oils, weren't they?—A. I don't know. They were selling oils.

Q. How did you happen to get in business connection with the Boston & Maine road?—A. How did I happen to get what?

Q. How did you happen to come in contact with the Boston & Maine road in this business matter here?—A. I think arrangements were made by our president, through Swan & Finch, to have them act as our agents for the Boston & Maine business.

Q. When was that arrangement made?—A. Some time, I presume, in 1897.

Q. Do you know?—A. No.

Q. Now, on the Boston & Maine Railroad you did not increase your guaranty for locomotive mileage in proportion to the increased cost, did you?—A. When are you speaking of?

Q. Well, take the contract of 1900. That cost of 1.95 wasn't
7459 based on the actual cost for the previous year, was it?—A. No.

Q. The actual cost to the Boston & Maine——A. Didn't intend to increase the guaranty in the contract beginning September 1, 1899, as against the prior contract. It was increased slightly, but simply to make round figures.

Q. You intended to continue the Boston & Maine below the actual cost, didn't you?—A. We were hoping all the time to meet that figure.

Q. Now, the preceding year was 2.57, wasn't it?—A. When was that?

Q. The year ending August 31, 1899.—A. Will you let me see the statement?

(Papers were handed to the witness by Mr. Crawford.)

WITNESS. I don't know what it was.

Q. You can figure it out in a very few moments, can't you?—A. We can. Have you got it figured up?

Q. Yes, sir. [Statement handed to the witness by Mr. Kellogg and explained to him by Mr. Hunter.]—A. For the year ending August 31, 1898, the cost was 2.736. The year ending August 31, 1899, the year's cost was 2.571. For the year ended August 31, 1900, 2,435; showing a constant reduction in the cost of lubricating locomotives.

Q. But you took the contract at 1.95?—A. We were encouraged, by that constant reduction, to take it for that.

Q. But in the Boston & Maine you did take the contract for
7460 less than the cost?—A. Yes, based upon that result.

Q. And the average for ten years is about 77 per cent of the cost?—A. I don't know what it is by that. [Papers handed to witness by Mr. Kellogg.] The per cent, as you have it figured out here, runs the first year 69.6; the next year 74——

Q. Don't read them off, because they are in evidence.—A. Well, I just want to show the gradual increase and the reason for having made these contracts. The first year was 69.6, the next year 74 per cent, the next year 80 per cent, the next year, on the divided guaranties, it fell to 75.5 per cent. The next year it was 84.7, the next year 83.8, the next 75.9, the next 74.4. In 1906 it was 76.7 per cent. The reason the last three years show a reduction, as compared with the other years, is due to larger power and the guaranty not having been increased in proportion to that cost.

Q. The average is about 77 per cent for ten years?—A. According to your figures; yes.

Q. And every new contract you made with the Boston & Maine you made the guaranties less than the actual cost for the preceding year?—A. They were continued on the basis that we had had them.

Q. Well, is that a fact or isn't it?—A. Yes.

Q. Then why don't you say so?—A. Well, that is what I said.

Q. Now, by the record furnished by the Standard Oil Company in this case, it shows that the Standard Oil Company owned the Swan & Finch Company prior to January, 1899.—A. I don't know anything about that.

7461 By Mr. ROSENTHAL:

Q. Take the Buffalo, Rochester & Pittsburg road next. When was your first contract made with that road?—A. The first contract was for 24 months, beginning July 1, 1898.

Q. And what was the basis on which that contract was made?—A. That contract was taken on the basis of 100 per cent of the previous cost when they had been using other oil.

Q. And with the result that you got the figures indicated on defendants' Exhibit 62?—A. Yes.

Q. Opposite your contract of July 1, 1898?—A. 1898.

Q. That contract seems to have been renewed July 1, 1900, at the same figures. Is that correct?—A. Yes.

Q. And when was the next renewal?—A. The next contract was for 36 months from July 1, 1902.

Q. I find an increase of all your guaranties under your July 1, 1902, contract. Why were those guaranties increased?—A. I personally negotiated that contract, and those increases were made on account of larger engines, larger cars, extension of the line into Pittsburg and other places—I think Newcastle, Pa.

Q. What do you mean by the clause "Increase in guarantees allowed account change in management?"—A. There was a change in the head of the motive power department, and also the general superintendent had been changed at that time I believe.

Q. What relation did that have to the increase in the guar-
7462 anty?—A. The only change that I could suggest in that connection would be that we recognized that their guaranties were too low considering the conditions that existed at that time.

Q. How much of a road is the Buffalo, Rochester & Pittsburg?—A. It runs from Rochester, New York, south to Pittsburg, Pennsylvania, Butler, Pennsylvania, Newcastle—all through the coal region of western Pennsylvania.

Q. Is it a small or a large road?—A. It is quite a large road. Considering the character of the road, it is quite a large one; it does a large coal business and freight business.

Q. Yes; but what about its mileage?—A. It has a mileage of, possibly, 400 miles, I should say.

By Mr. KELLOGG:

Q. This is one of the roads you said you were losing money on?—A. Yes.

Q. Why do you sell oil to the Buffalo, Rochester & Pittsburg and lose money on it?—A. We have a sufficiently high guaranty and expect to meet it as soon as the management gets down to economy.

Q. You have been losing money on that road for nine years, you say?—A. Yes.

Q. And you are at the present time selling that road your oil at 66 per cent of the invoice price?—A. Yes. This is another Pennsylvania proposition.

Q. Does the Pennsylvania Company own it?—A. No; but it is similar to that proposition.

Q. The Pennsylvania Company had nothing to do with it?—A. No.

7463 Q. You have been willing to lose money on that road for a period of nine years in the expectation of some time making it up?—A. Yes.

Q. Making new contracts continuously on a basis on which you lost money?

Mr. ROSENTHAL. They have only made three contracts, all told?

A. We have only made three. The last contract, the general superintendent, or general manager now, assured me that with the cooperation he expected to give us, we ought to make the figures that are inserted in that contract, but we have failed. On the strength of his assurance I made that contract at those figures.

Q. You knew as much about it as he did, didn't you?—A. No; he ought to have known better.

Q. It still remains that every year you have lost money on that contract?—A. Yes.

Q. And that is the only explanation you have got to make of that fact?—A. Yes, sir.

Q. Why didn't you increase the guaranties equal to the invoice cost, the same as you did on the Atchison, Topeka & Santa Fe?—A. I tried to.

Q. They wouldn't have it?—A. Because they expected to make these figures, and they are sufficiently high, Mr. Kellogg, if we can get the service out of the oil.

Q. Have you been willing in every case to take the expectation of a railway company?—A. Yes, sir.

7464 Q. In every case, always?—A. Yes, sir; we rely on their judgment to a large extent.

By Mr. ROSENTHAL:

Q. I direct your attention next to the Baltimore & Ohio. Did you have to do with the making of that contract?—A. Yes, sir.

Q. When was the first contract made with the Baltimore & Ohio?—A. For 18 months, beginning July 1, 1894.

Q. At what figures?—A. Locomotives $2.50, passenger cars 40 cents, and freight cars 11.5 cents.

Q. Where did you get those figures from?—A. Those were figures taken from our records and shown to be based upon what they had done prior.

Q. Had they, prior to 1894, used the Galena oils?—A. They had on some divisions.

Q. Attending, however, to their own lubrication?—A. Yes, sir.

Q. And these figures contained in the contract of 1894 were flat figures which you agreed upon with them?—A. Yes, sir.

Q. As a figure at which you would agree to lubricate the road?—A. Yes, sir.

Q. Were those figures below what it had theretofore cost the Baltimore & Ohio?—A. They were much below the actual previous cost.

Q. And have you, from time to time since then, renewed the contract with the Baltimore & Ohio, as shown on defendants' Exhibit 62?—A. We have.

Q. I notice a reduction in locomotive lubrication from $2.50,
7465 under the 1894 contract, to $1.75 under the 1904 contract; on passenger lubrication from 40 cents to 10 cents, and freight car from 11.5 cents to 7 cents. Has that reduction been a steady reduction from the time that you began lubricating that road?—A. Yes, sir.

Q. Have you figured the amount of money actually saved to the Baltimore & Ohio since you have been lubricating that road?—A. Yes, sir.

Q. And what figures have you arrived at?—A. The last contract, three-year contract, from July 1, 1904, at $1.75 for locomotives, 10 cents for passenger cars, and 7 cents for freight cars, compared with the first contract, locomotives at $2.50, passenger cars 40 cents, and freight cars 11.5 cents, resulted in a saving to the railroad company of $85,936.68 per year, not considering the reductions in guaranties for consolidated lines which the B. & O. acquired during that period.

Q. Did you also have the Baltimore & Ohio Southwestern?—A. Yes.

Q. And your first contract there was made when?—A. For five years, beginning July 1, 1899—locomotives at $2.00, passenger cars 25 cents, and freight cars 8 cents.

Q. And when was your next contract made?—A. The next contract was for five years, commencing July 1, 1904—locomotives at $1.75, passenger cars 10 cents, and freight cars 7 cents. Those figures were given on account of the contract with the B. & O., they having acquired that line at that time.

7466 Q. That is, the Baltimore & Ohio Southwestern were given, under the July 1, 1904, contract, the same guaranties as the Baltimore & Ohio proper was given under the contract of the same date?—A. Yes, sir.

Q. Have you figured the annual saving to the Baltimore & Ohio Southwestern under their last contract, as compared with the previous contract?—A. Yes.

Q. And with what result?—A. The last contract with the B. & O. Southwestern resulted in a saving to the railroad company of $5,459.82 per year, as compared with the previous contract.

By Mr. KELLOGG:

Q. Prior to your making a contract with the Baltimore & Ohio in 1894 the company had been buying and using a crude petroleum for lubricating, hadn't it?—A. So I understand it.

Q. And it was a very crude and inefficient system, wasn't it?—A. I don't know.

Q. Well, you do know that crude petroleum was tried on some railroads and found not to be a proper lubrication?—A. They were using several kinds of oil at that time. They were using a crude, and they were also using some produced in Philadelphia by an oil company at that point, I understand.

Q. You heard Mr. Odell testify, didn't you?—A. Yes.

Q. That they were using a mixture of crude petroleum and some-

thing else that they made themselves?—A. On some of the divisions.

7467 Q. Well, he says on the Baltimore & Ohio railroad.—A. That was east of the Ohio River he was talking about.

Q. And it wasn't a good lubricant?—A. No; those oils are never a good lubricant.

Q. Long before that most of the railroads had abandoned using it?—A. I don't know as to that. Most of them had begun using Galena oils at that time.

Q. Now, you say that you entered into a new contract July 1, 1904, by which you reduced the engine guaranty from $2.00 to $1.75 per 1,000 miles.—A. Yes.

Q. Why did you make that reduction to the Baltimore & Ohio Railroad Company when the actual cost, based on invoice, was $2.69 for the previous year?—A. Because of the assurance of the Baltimore & Ohio officials that they could meet that guaranty.

Q. Wasn't it because there was a bid from another company, and you had to do it?—A. No, sir; not that I know of.

Q. You don't know about that?—A. No, sir.

Q. You don't know that there was another company bidding?—A. I was in the office when the contract was made, and we contended for a larger figure, and the officials claimed we could meet that figure, and insisted on it being made at that figure. On their contention we allowed it.

Q. You didn't know at that time that another company had bid and that you were compelled to give that figure to keep them from getting the contract?—A. No; I didn't know it.

Q. You didn't know that?—A. No.

Q. Didn't Mr. Bankard tell you so?—A. No.

Q. Then, Mr. Bankard don't tell the truth if he says he

7468 did?—A. He didn't tell me so.

Q. He did not?—A. No.

Q. And you have no knowledge whatever that any other company had made any bid or tried to sell them their oil?—A. No.

Mr. ROSENTHAL. Now, I object to it. He has answered it several times already.

Q. Is not it a fact that Mr. Miller made that contract?—A. I was present at the time.

Q. Wasn't Mr. Miller there also?—A. Yes, sir.

Q. Now, I show you a letter written by Mr. Bankard, in which he says: "Touching the reduction of price——"

Mr. ROSENTHAL. Have you got a letter from Mr. Bankard there?

Mr. KELLOGG. Yes, sir.

Mr. ROSENTHAL. An original letter?

Mr. KELLOGG. Yes, sir; an original letter.

Mr. ROSENTHAL. Let me see it.

(Mr. Kellogg hands papers to Mr. Rosenthal.)

Mr. ROSENTHAL. I have no objection to this whole letter going into the record, although you are getting it in in violation of all rules of evidence.

Mr. KELLOGG. Let me read it. "April 5th, 1906. Hon. James Rudolph Garfield, commissioner." It is headed "Office of the purchasing agent, the Baltimore & Ohio Railroad Company." You don't care about all those things being read in, do you?

Mr. ROSENTHAL. Oh, no.

7469 Mr. KELLOGG (reading).

"*Commissioner, Department of Commerce and Labor, Washington, D. C.*

"DEAR SIR: Your favor of the 12th ult. was referred, on the 16th ult., to our general superintendent of motor power, who wrote me on the 30th ult. that, owing to the destruction of his departmental records by the fire of February 7, 1904, he is not able to supply the information.

"Touching the reduction in price mentioned in the second paragraph of your letter, I would state that the president of the Galena-Signal Oil Company called upon me and endeavored to secure an advance, claiming that by reason of the larger equipment, the cost of lubrication per 1,000 miles had necessarily increased. I was unwilling to allow the advance, and after long-continued negotiations he consented to make a reduction rather than risk our placing orders elsewhere.

"Since my appointment as purchasing agent on December 1st, 1896, we have always procured our lubricating oils for equipment drawn by steam power and signal oils from the Galena-Signal Oil Company.

"I regret that I can not give you more definite information, but the fire which destroyed the records of the mechanical department likewise burnt up those of my own.

"Yours, very truly,

"E. H. BANKARD,
"*Purchasing Agent.*"

7470 Mr. ROSENTHAL. What is there in the letter that states any other company was making any bid?

Q. Is that statement of Mr. Bankard correct?—A. I don't know. I never saw anything of that kind.

Q. Wasn't Mr. Miller there with you?—A. Yes.

Q. Isn't it a fact that you insisted on an increase?—A. I don't recollect that.

Q. Because the actual cost had increased instead of decreased?—A. It would be natural we would ask for an increase.

Q. The actual cost had increased, hadn't it?—A. I don't remember now.

Q. You don't remember?—A. No.

Q. It appears to have been $2.38 in 1900 and $2.69 in 1904.—A. This contract was made prior to 1904.

Q. Well, to the ending of it, I mean, July 1, 1904.—A. That was the first year under this contract.

Q. Yes. It was $2.80 the year before—1903.—A. In 1903?

Q. Yes.—A. According to your figures?

Q. Yes.

Mr. ROSENTHAL. Show him the figures.

(Mr. Kellogg hands paper to witness.)

WITNESS. June 30, 1904, it was $2.69.

Q. That is what I said.—A. It was coming down then.

Q. But, as a matter of fact, it was higher than it was in 1900?—A. Yes.

Q. Which was the first year of the contract, the preceding
7471 contract.—A. Yes.

Q. Then it is a fact, is it, that you asked for an increase?—A. I think that might be possible.

Q. And that you ended by giving them a decrease?—A. Yes; after their assurance that we could make that figure.

Q. And is it true that you did that because of the danger or the risk of it being placed with other people?—A. No.

Q. That is not true?—A. No. Simply on their assurance.

Q. Mr. Bankard doesn't know what he is talking about?—A. Simply on their assurance we could meet that figure.

Q. Then, Mr. Bankard is mistaken when he says that?—A. I don't know as he says that.

Q. You know his signature, don't you?—A. I know his signature, yes.

Q. That is his signature, isn't it? [Handing letter to witness.]—A. I don't know that the statement "he consented to make a reduction rather than risk our placing orders elsewhere" is true. I don't know that that is true.

Q. You don't know that it is not true, do you?—A. I know that we made a reduction. I know the reduction was made by reason of their assurance that we could meet those figures.

Q. That is Mr. Bankard's signature, isn't it?—A. Yes.

Q. And that is his statement?—A. I presume so.

Q. Now, is it true, or isn't it?—A. I don't know that it is true.
7472 Mr. KELLOGG. It is admitted that the phrase in Mr. Bankard's letter of April 5, 1906, "Touching the reduction in price mentioned in the second paragraph of your letter," refers to the reduction in the guaranties under the contract signed July 1, 1904.

By Mr. ROSENTHAL:

Q. Now I direct your attention to the historical statement showing the various contracts made with the Bangor & Aroostook Railroad, as shown on Defendants' Exhibit 62. Will you please give us the historical development of those contracts?—A. The first contract with the Bangor & Aroostook Railroad was for 12 months from January 1, 1897, at a guaranty of $3.654 per 1,000 locomotive miles, covering the lubrication of passenger cars, freight cars, and locomotives, and this figure was based upon 100 per cent of their previous cost when other oils were used.

Q. What do you mean by that?—A. That is, that the $3.654 per 1,000 locomotive miles was equivalent to what it had cost the railroad with the use of other oils prior to this contract.

Q. I suppose what you really mean is that you, in the first instance, agreed with the Bangor & Aroostook to lubricate their road for 100 per cent of what it had theretofore been costing them?—A. Yes, sir.

Q. And that thereupon the Bangor & Aroostook road produced these figures, $3.654 as the figures, or as a figure showing what it had previously cost that road for its lubrication?—A. Yes, sir.

7473 Q. And that figure you accepted as the correct figure?—A. As the correct figure.

Q. Now go ahead with the historical development of those contracts.—A. The next contract was for 12 months from January 1, 1898, at a cost of $3.10 per 1,000 locomotive miles—a reduction of 55.4 cents as compared with the previous contract. The next contract was taken for 36 months from January 1, 1899, at, locomotives, $1.90; passenger cars, 11 cents; and freight cars, 11 cents, and these figures were equal to 16.3 per cent below the previous contract. The next contract was for three years from January 1, 1902, at, locomotives, $2.20; passenger cars, 12 cents; freight cars, 12 cents.

Q. Why were those figures made?—A. These figures were made on account of the increased size of the equipment, but they did not equal the previous figure of $3.10 for locomotive mileage only. The next contract was taken for three years from January 1, 1905, at, locomotives, $2.38; passenger cars, 10 cents; and freight cars, 10 cents. The guaranty on locomotives was increased from $2.20 to $2.38, but offset by a reduction of 2 cents on passenger cars and 2 cents on freight cars.

Q. A reduction of 2 cents on freight cars is the equivalent of how much on locomotives?—A. Of about 24 cents on locomotives.

Q. So that the locomotive was not increased proportionately as much as the freight guaranty was decreased?—A. No, sir.

7474 Q. And a decrease of 2 cents on passenger car lubrication is equivalent to what locomotive lubrication?—A. To about 3 cents in locomotive service.

Q. So that while there is an increase in the cost of locomotive lubrication of 18 cents, a decrease of 2 cents in passenger car lubrication and of 2 cents in freight car lubrication more than offset in the sum total the increase in locomotive lubrication?—A. Yes, sir.

Q. And why was that increase in locomotive lubrication?—A. Due to the larger engines that had been installed during that period.

Q. And why was the decrease in passenger and freight car lubrication made?—A. Because we had found that we could lubricate them for that or less.

Q. And accordingly made contracts?—A. Yes.

By Mr. KELLOGG:

Q. You say they were using other oils prior to the first contract in 1897?—A. Yes, sir.

Q. What oils?—A. I don't know.

Q. Then, how do you know they were using other oils?—A. Because that guaranty was based upon what they had purchased prior to that time, and they were not buying our oils at that time.

Q. They were not buying from the Galena-Signal Oil Company?—A. No, sir.

Q. Were they buying of Swan & Finch?—A. No, sir.

Q. You know they were not?—A. I know that.

Q. What other agents did you sell oils through in New England?—A. At that time?

7475 Q. Yes.—A. Alden, Spear's Sons Company.

Q. In Boston?—A. In Boston.

Q. Did you sell lubricating oils through them?—A. Yes.

Q. All over New England?—A. No.

Q. Through what States?—A. Through Boston and Massachusetts and——

Q. And Maine?—A. I don't think they sold anything in Maine at that time.

Q. Do you know whether they did or not?—A. I know that the Bangor & Aroostook didn't receive any oils prior to this first contract.

Q. From your company?—A. From any one.

Q. From any one?—A. From any one. Because all agents report to Franklin all deliveries made of Galena oils.

Q. Isn't it a fact that the Bangor & Aroostook road was built about that time?—A. I don't know. It was using lubricating oils prior to this contract.

Q. How long prior?—A. I don't know.

Q. It is a little road running from Bangor up north, isn't it?—A. Yes.

Q. And was built about that time, wasn't it?—A. I don't know when it was built.

Q. And you don't know what oils they were using?—A. No, sir.

Q. Or how they were lubricating their equipment?—A. No.

Q. Now, what other agents sell your oils in New England
7476 besides Swan & Finch and the Spear's concern?—A. None that I know of.

Q. The Bedford Petroleum Company used to sell them?—A. No.

Q. Never sold them? Thompson & Bedford?—A. No.

Q. They never sold any?—A. No.

Q. Did you ever hear of a concern named the Vacuum Oil Company?—A. Yes.

Q. You have heard of it?—A. Yes; I have heard of it.

Q. Did you ever hear that it sold lubricating oils?—A. Yes; I have heard it sold lubricating oils.

Q. How many years ago did you hear of that?—A. I couldn't tell you.

Q. You don't know?—A. No.

Q. Your knowledge is very limited about the Vacuum Oil Company?—A. Yes.

Q. You don't know that it has belonged to the Standard Oil Company for many years, do you?—A. No; I don't.

Q. You have never heard of it?—A. I have heard of it, yes.

Q. How long ago did you hear of it?—A. Within the last ten years.

Q. Did you know that they took pains to keep that quiet from the general public?—A. No.

Q. You didn't know that?—A. No.

Q. It used to lubricate railroads, didn't it?—A. I don't know.

Q. You don't know anything about that?—A. No.

Q. You never heard anything about that?—A. No.

7477 By Mr. ROSENTHAL:

Q. Take up next the Cincinnati, Hamilton & Dayton. Did you have to do with the making of those contracts, originally?—A. Yes, sir.

Q. Please give us a history of those various contracts.—A. The first contract with the Cincinnati, Hamilton & Dayton Railroad was taken for three years commencing October 1, 1896, at, locomotives, $1.5248; passenger cars, .182; freight cars, .1239, and these figures represented 100 per cent of the previous cost when they were using other oils. The contract provided that if the actual cost of the use of Galena oils should come within $200 of these guaranties, the guaranties would be reduced 2½ per cent. The next contract was taken for three years from October 1, 1899, on the same basis.

Q. Had the Cincinnati, Hamilton & Dayton prior to 1896 been using Galena oils?—A. No, sir.

Q. So your contract of 100 per cent of the previous cost was based upon what it had theretofore cost that road in using other oils for lubrication?—A. Yes, sir. The next contract was for 39 months from October 1, 1902, at, locomotives, $1.85; passenger cars, 17 cents, and freight cars, 9 cents. The passenger-car figure was reduced 1.2 cents and the freight-car figure was reduced 3.39 cents per 1,000 miles, and the locomotive figure was increased from $1.5248 to $1.85. At that time the railroad had put in a number of large locomotives, and that increased the guaranty on locomotives and reduced the passenger and freight car guaranty more than enough to offset
7478 that reduction, our experience having been that we had reduced the cost on passenger and freight cars. The next contract was for five years from January 1, 1906, at, locomotives, $2.50; passenger cars, 17 cents, and freight cars, 7.6 cents.

Q. Why was there an increase made there on the locomotive lubrication and a decrease made on the freight car lubrication?—A. The road had put in a large number of engines, and a change in management had taken place; consequently the cost of locomotives had gone up, and we found that we could further reduce the freight car guaranty 1½ cents to partially offset that increase in locomotive service.

Q. So that it frequently happens, Mr. Steinbrenner, that the cost of locomotive lubrication may go up and the cost of passenger and freight car lubrication go down?—A. Yes, sir.

Q. Or vice versa?—A. Or vice versa.

Q. There is no necessary relationship between the two?—A. No, sir.

Q. Now, in the increase in the changes that were made in the contract October 1, 1902, as compared with the October 1, 1899, contract, as a matter of fact was the total cost of lubrication under the 1902 contract greater or less than the total cost of lubrication under the 1899 contract?—A. Taking the three classes of service together, the cost under the contract of October 1, 1902, would be less than the cost under the contract of October 1, 1899.

Q. That is, the cost to the railroad?—A. Yes, sir.

7479 By Mr. KELLOGG:

Q. What other company's oils did the Cincinnati, Hamilton & Dayton use prior to 1896?—A. I don't know.

Q. Then, how do you know what the cost was?—A. I went over the figures prior to that contract with their purchasing agent and auditor and established those figures as the previous cost, and agreed upon them.

Q. Where are the figures?—A. I presume I could find them in my office if the memorandums have been saved.

Q. Did you have those memorandums before you when you made up this statement?—A. No. Those were then inserted in the contract.

Q. In the contract you inserted that statement, did you?—A. Yes, sir.

Q. The contract doesn't contain any statement that it is 100 per cent, does it?—A. I think it does.

Q. Well, let us see. Where is it?—A. Have you got the original contract, Mr. Crawford?

Q. Or a copy of it.—A. We can produce it.

Mr. CRAWFORD. We can produce it if we haven't it here.

Q. Do you know that the contract contains that statement, that that is 100 per cent of the previous cost?—A. I am quite sure of it.

Q. Do you remember the Cincinnati, Hamilton & Dayton man testifying here?—A. No, sir.

7480 Q. Or some one of your experts testifying?—A. Some one of our experts, yes.

Q. Didn't he testify they previously bought Galena oils?—A. That was after. He didn't go there as the first expert on the C., H. & D. Railroad.

Q. He said that previous to the time of his going there they used Galena oils.—A. That may be. He may have started there two years after this contract.

Q. You haven't got the figures showing what the previous cost was?—A. I can produce them, sir.

Q. You can?—A. Yes, sir.

Q. Well, produce them, will you?—A. Yes, sir.

Q. Do you know what company, if any, furnished the oil?—A. No. I know the Galena didn't.

Q. Do you know the Vacuum Oil Company didn't?—A. No, sir.

Q. You don't know but what it did?—A. No.

Q. The Vacuum Oil Company was selling lubricating oils at that time, wasn't it?—A. I presume so.

Q. To railroads?—A. Not to railroads, that I know of.

Q. Do you know they did not?—A. No; I don't.

By Mr. ROSENTHAL:

Q. Take up next, if you please, the Charleston & Western Carolina, shown on Exhibit 62. Did you have to do, Mr. Steinbrenner, with the making of that first contract, in the year 1902?—A. Yes, sir.

Q. Will you please give us the historical development of those three contracts made with the Charleston & Western

7481 Carolina?—A. The first contract with the Charleston & Western Carolina was taken for 21 months from April 1, 1902, at, locomotives, $0.755; passenger cars, $0.1048; and freight cars, $0.0473 per 1,000 miles, and these figures represented 100 per cent of what it had previously been costing them with other oils. The next contract was for 24 months from January 1, 1904, at, locomotives, $1.00; passenger cars, $0.105; freight cars, $0.045. The next contract was for three years from January 1, 1906, at, locomotives, $1.25; passenger cars, $0.105; and freight cars, $0.05 per 1,000 miles.

Q. Why was the increase made in the cost of locomotive and freight car lubrication in the 1906 contract?—A. Due to the larger equipment that had been introduced during the different periods.

Q. Prior to 1902, had the Charleston & Western Carolina used the Galena oils?—A. No, sir; excepting as they got the benefit of it in connection with the Atlantic Coast Line.

Q. So that 100 per cent of the previous cost means 100 per cent of the previous cost of lubrication to that road while using other oils than the Galena oils?—A. Yes, sir.

Q. Except as you have just qualified it.

By Mr. KELLOGG:

Q. Now, the Charleston & Western Carolina is a part of the Atlantic Coast system, isn't it?—A. Yes, sir.

Q. And the same time you took this company you took the Atlantic Coast Line?—A. We had been lubricating the Atlantic Coast Line from November 1, 1895.

7482 Q. Well, you took the contract at the same time you took this contract, didn't you—the same date exactly?

Mr. ROSENTHAL. No.

A. No, no; this contract was from April 1, 1902, the first contract with the Charleston & Western Carolina, and the contract with the Atlantic Coast Line was July 1, 1902.

Q. Oh, yes. Well, substantially, lacking two or three months of covering the same date?—A. Probably three or four months prior it was negotiated.

Q. Your guaranty to the Atlantic Coast Line was $1.82 per 1,000 miles for engines, while your guaranty to the Charleston & Western Carolina was 75.58 cents, wasn't it?—A. Yes.

Q. Your guaranty of passenger cars was 18 cents to the Atlantic Coast Line and about 10½ to the Charleston & Western Carolina? Correct?—A. Yes.

Q. And your guaranty on freight cars was 10 cents to the Atlantic Coast Line and substantially 4.10 cents to the Charleston & Western Carolina?—A. Yes.

Q. In other words, your guaranties, on an average, were less than one-half the guaranty on the Atlantic Coast; that is, the average cost?—A. Yes.

Q. Less than a half. Now, the Charleston & Western Carolina during that first year paid 47½ per cent of the invoice price, didn't it?—A. For what?

Q. Paid 47½ of the invoice price?—A. No; we consider that
7483 with the Atlantic Coast Line.

Q. Well, you got your statements separately, didn't you?—A. Yes; under that contract.

Q. I ask you if the Charleston & Western Carolina didn't pay 47½ per cent of the invoice price?—A. I don't know what it paid. We always considered it in connection with the Atlantic Coast Line.

Q. Is that what I asked you? You made a contract, didn't you?—A. Yes.

Q. And you kept a separate statement, didn't you?—A. We keep the performance separately, but in the final settlement it is considered the Atlantic Coast Line.

Q. The settlements are separate, aren't they?—A. I don't know now.

Q. Will you look and see if the settlements for that year were not separate?—A. That may have been.

Q. Very well. The contract was a separate contract?—A. Yes.

Q. The guaranties were separate and different?—A. Yes.

Q. The settlements were separate, were they not?—A. Yes.

Q. Now, I ask you to turn to the settlement for the first year, for the 21 months ending December 31, 1903. What percentage did you refund to the Charleston & Western Carolina?—A. (After looking at papers.) On the Charleston & Western Carolina, if you take it as a separate line, it was 47 per cent.

Q. That is, they paid 47 per cent?—A. Yes; but take it in connection with the Atlantic Coast Line, we didn't refund 1
7484 per cent.

Q. The Atlantic Coast Line paid 100 per cent, didn't it?—A. Yes.

Q. For the same year?—A. That is a very small business compared with the whole.

Q. I am asking you what you did, not your opinion as to the business.—A. I am trying to tell you what we do.

Q. They actually did get their oils for 47½ per cent of the invoice price?—A. Not when you consider it in connection with the Atlantic Coast Line, and that is the way we consider it.

Q. When you had a separate contract, with separate guaranties, made separate settlements, received separate remittances, how do you consider it any other way?—A. We don't receive separate remittances. Our account is kept with the Atlantic Coast Line System. This is only made up for your convenience.

Mr. ROSENTHAL. Was that 47 per cent or 53 per cent?

WITNESS. The per cent of excess is 47 per cent. They paid 53 per cent.

Q. Do you swear that you don't keep a separate account in your office of the Charleston & Western Carolina?—A. I do.

Q. No separate account is kept?—A. We keep the mileage, but our invoices are made against the Atlantic Coast Line.

Q. Oh, well!—A. We don't know on our general books the Charleston & Western Carolina Railroad.

Q. How do you show the exact performance by the Charleston & Western Carolina?—A. It is what they report back to us.

Q. That report shows the mileage?—A. Yes.

7485 Q. It shows the amount of oil used?—A. Exactly.

Q. It shows the invoice prices?—A. The same as any other division.

Q. Well, does it show that?—A. Yes.

Q. It shows the guaranties?—A. No.

Q. And it shows the performance?—A. It shows the performance, of what they consume on that division.

Q. And from that you make up a statement showing that they receive their oils for 53 per cent or 53½ per cent of the invoice price?—A. That division.

Q. All that is shown on your books?—A. No.

Q. Where do you get it?—A. I get it from these statements.

Q. They are furnished by you, aren't they?—A. We don't figure the percentage, as we have figured it for your purposes, in connection with our business; we have done this for your convenience.

Q. Now, I ask you if you didn't get a separate check from the Charleston & Western Carolina for that year ending December 31, 1903, and have separate vouchers?—A. I don't know that we got a separate check. That would pass through our treasurer's hands.

Q. And didn't you make separate vouchers?—A. No.

Q. Now, it is a fact, isn't it, that the Charleston & Western Carolina lubricated its own railroad for the year preceding which you took your first contract?—A. Yes.

Q. And on its own performance it had reduced the cost to

7486 the figures you took that contract?—A. Yes.

Q. And isn't that the reason you took that contract for less than half of what you took the Atlantic Coast Line?—A. No.

Q. You heard the testimony of the superintendent of motive power?—A. I heard the testimony of Mr. Fechtig personally.

Q. Of the purchasing agent. He stated they had reduced the cost on the Charleston & Western Carolina?—A. Yes; they had the benefit on the Charleston & Western Carolina of our system of lubricating the Atlantic Coast Line.

Q. Didn't he swear you had nothing to do with the lubrication of the Western Carolina at all?—A. But the experience they had on the Atlantic Coast Line had enabled them to make a very low performance on the Charleston & Western Carolina.

Q. Did he testify to that?—A. I think so.

Q. Do you know he did?—A. Yes.

Q. You know he did?—A. Yes.

Q. Then, why didn't they show that same reduction on the Atlantic Coast Line?—A. Because it is a small division, the character of the equipment is entirely different, the character of the road is entirely different.

Q. You know what the character of the equipment is, do you?—A. From what he stated.

Q. And you know what the character of the road is, do you?—A. Yes.

Q. Now, you get your information entirely from what he testified to, don't you?—A. Exactly. I assume that is true.

7487 Q. He didn't testify to anything of the kind, did he?—A. Yes, he did.

Q. He did not. Now, as a matter of fact, isn't the Charleston & Western Carolina, under your own contract, using more oil than the Atlantic Coast Line?—A. I don't know now.

Q. You don't know? Then, it is not so cheap a road to lubricate, is it, if it is using more oil?

Mr. ROSENTHAL. Oh, well, don't pile hypotheses upon hypotheses here.

Mr. KELLOGG. No, I am showing he is testifying falsely, that is what I am showing.

WITNESS. No, I am not testifying falsely. I am testifying to the truth.

Mr. ROSENTHAL. Don't get into any controversy with Mr. Kellogg.

Q. There are the two lines of road [handing papers to witness], and I ask you if the Charleston & Western Carolina is not using more oil than the Atlantic Coast Line?—A. Yes. They have not been using ours quite as long as the Atlantic Coast Line and have not got the benefit of the experience.

Q. And they didn't have the benefit of the Atlantic Coast Line experience?—A. They did in some respects.

Q. Then they lost it after you took the contract, did they?—A. No.

(A recess was here taken until 2 o'clock p. m., at which time Mr. Kellogg resumed his examination, as follows:)

7488 Q. Is it not a fact that you rendered separate bills and statements to the Charleston & Western Carolina, separate vouch-

ers, and made separate checks, and received separate vouchers for the refund?—A. I think we passed a bill from the Charleston & Western Carolina for the refund, but our invoices for the original delivery of the oils are made against the Atlantic Coast Line.

Q. You mean that you simply billed bulk oil to the Atlantic Coast Line?—A. Yes.

Q. At bulk price?—A. Yes.

Q. But as a matter of fact the contracts were separate, the performance was entirely kept separate——A. Yes.

Q. The locomotive and car mileage kept separate?—A. Yes.

Q. The final settlement between you and the railroad company was kept separate?—A. The refund was made to the Charleston & Western Carolina.

Q. Well, that is the final settlement, isn't it?—A. Under the guaranty; yes.

Q. And you made a separate bill and made a separate check and received a separate voucher from the Charleston & Western Carolina road?—A. We received a separate bill from the Charleston & Western Carolina for this excess on their performance?

Q. Yes.—A. Yes, sir.

Q. And you gave a separate check?—A. To the Charleston & Western Carolina; yes; because their accounts are kept separate.

7489 Q. And you made out the bill showing the total invoice cost, the locomotive and car cost under the contract, showing the refund, and the bill was made out Galena-Signal Oil Company, Franklin, Pennsylvania, to the Charleston & Western Carolina Railway Company?—A. That bill was made by the Charleston & Western Carolina.

Q. I show you that and ask you if that is a copy of the bill? [Handing paper to witness.]—A. I don't know, but I presume it is; but if it is a bill it is made out by the Charleston & Western Carolina against the Galena-Signal Oil Company, and we simply checked it as against their monthly statements.

Q. And sent them a check for it?—A. I presume so.

Q. A separate check?—A. A separate check. But the original account with us is kept with the Atlantic Coast Line Railroad.

Q. But you keep an account showing the invoice cost, the amount of oil used by the Western Carolina, the guaranteed cost, and the final settlement cost, don't you?—A. Except as reported by the railroad company.

Q. It is the same in all railroads, isn't it, in that respect?—A. It is not, in so far as the division is concerned, with all railroads.

Mr. KELLOGG. May I ask one question about that Bangor & Aroostook Railroad that I overlooked?

Mr. ROSENTHAL. Yes; go ahead.

Q. Now, as to the Bangor & Aroostook Railroad, I looked that up in Poor's Manual, and I ask you if it is not a fact that substan-

7490 tially all—or, at least, the greater part—of the mileage of the

Bangor & Aroostook Railroad was acquired after 1899, and that the company never owned any road or operated any prior to January 1, 1895?—A. I said I didn't know.

Q. You don't know anything about it?—A. No.

Q. If that is true, they couldn't have been using anybody's else oil on a great deal of their road.—A. They used it on whatever they had in existence prior to 1897.

By Mr. ROSENTHAL:

Q. The Chicago & Eastern Illinois you have covered in your testimony heretofore, have you not?—A. I think I have.

Q. Take up the history, next, of the Central of Georgia. When was your first contract made with that road?—A. The first contract was for 12 months from January 1, 1902, at. locomotives, 88 cents, passenger cars, 11.39 cents, and freight cars, 9.26 cents.

Q. How did you get at that figure?—A. That was a flat figure offered at that time for the lubrication of that road.

Q. You had no prior experience?—A. No, sir.

Q. And your 1903 and 1904 contracts seem to have been renewed at the same price?—A. The same price.

Q. And in 1906 you increased the cost of locomotive lubrication and decreased the passenger and freight car cost?—A. Yes.

Q. Why was that done?—A. There were a lot of new engines put in during the previous contracts, and we secured an increase
7491 in the guaranty, I think, based upon a percentage of the increase, and we were able to lubricate the cars for less money and made a guaranty of that rate, 4 cents for freight cars and 10 cents for passenger cars, to offset the increase on locomotives.

Q. I notice you have a note opposite that: "Decrease in freight car guaranty more than offset by increase in locomotive guaranty." The word "by" ought to be omitted there, ought it not?—A. No, the locomotive guaranty was slightly in excess, that is, the increase in the locomotive guaranty was slightly in excess of the redction of the passenger and freight car guaranty.

Q. The reduction in freight car guaranty was 5.26 cents?—A. Yes.

Q. That is the equivalent of what in locomotive lubrication?—A. If the ratio of mileage is the same, it would be——

Q. It would be about 6 cents, wouldn't it?—A. Yes; that is right. The decrease in passenger and freight car guaranty more than offset the increase in locomotive guaranty.

Q. We will strike out the word "by," then. That is on the Central of Georgia.

By Mr. KELLOGG:

Q. Did you take this contract for the Central of Georgia?—A. No, sir.

Q. Who did?—A. It was negotiated by Mr. Grundy.

Q. Where are his headquarters?—A. Richmond, Virginia.

Q. He also negotiated the Louisville & Nashville contract, didn't he?—A. Not the last one. He did the first one.

7492 Q. He did the first one?—A. Yes, sir.

Q. What is his name?—A. Barton H. Grundy.

Q. You were familiar with the Central of Georgia at the time he took it, weren't you?—A. Are you talking now of the first contract or the last contract?

Q. The first contract.—A. No, I was not.

Q. On what basis did you make that contract?—A. I don't know that we had any basis. He negotiated it at that time.

Q. Do you permit your men in the field to negotiate a contract on any basis and without any information as to prior conditions?—A. Sometimes.

Q. Well, you know as a mater of fact, don't you, from inquiry, from information received, that the Central of Georgia was being lubricated by another company?—A. I knew they were because they were not buying our oils at that time.

Q. And you know as a matter of fact, don't you, from information received, that they had reduced the cost to the figures substantially at which you took it?—A. No, I do not.

Q. You never received any such information?—A. No, sir.

Q. You never heard it?—A. No, sir.

Q. You testify that you never heard, any time or place, that the figures which you took the Central of Georgia contract for were the cost which the Central of Georgia made under lubrication with the New York Lubricating Company?—A. That is what I say.

Q. You never heard that?—A. No, sir.

7493 Q. You made no inquiry as to what the previous costs were?—A. No, sir.

Q. Neither did Mr. Grundy?—A. I don't know what he did.

Q. Did you ever talk with him about it?—A. No, sir.

Q. You executed the contract without any inquiry?—A. I didn't execute it.

Q. Well your company did?—A. Our agent did.

Q. You let Mr. Grundy make any kind of contract he pleases?—A. In some cases.

Q. Is there any reason why you don't care to inquire into that contract?—A. No, sir. The contract came to me signed and executed, with those figures inserted. That ended it with me.

Q. That is one of the roads I believe you say you are losing money on?—A. Yes, sir.

Q. You have lost money on it since 1902?—A. Ever since we started.

Q. Now, doesn't the contract state on its face that those were the costs to the Central of Georgia prior to that?—A. No, sir.

Q. It doesn't?—A. No, sir.

Q. For how long was that contract taken?—A. One year.

Q. It was renewed in 1903?—A. Yes.

Q. You were then losing money?—A. Yes.

Q. It was renewed again in 1904, was it?—A. Yes, sir.

Q. You were then losing money?—A. Yes.

Q. It was renewed in 1906, was it?—A. Yes.

Q. You have been losing money?—A. And still lose it.

7494 Q. And still losing money?—A. Yes.

Q. And the guaranties, as a whole, under the last contract are a little lower than they were under the previous contract?—A. Yes.

Q. And between 1904 and 1906 there was a period that you didn't lubricate the road, wasn't there—a period of fifteen months?—A. Yes.

Q. And then you took the contract at a still lower figure than it was previously?—A. Apparently.

Q. And you were losing money on the previous contract?—A. Yes.

Q. Now, do you say that between 1904 and 1906 you never heard that the road was being lubricated by the New York Lubricating Company?—A. I didn't know it was being lubricated by the New York Lubricating Company.

Q. You didn't know it?—A. No. I knew somebody else besides ourselves was lubricating the road, naturally.

Q. And who took the contract of 1906?—A. Mr. Grundy.

Q. You had never anything to do with it, with none of the contracts?—A. No.

Q. You knew somebody else was lubricating it?—A. I presumed so.

Q. But that is not a reason why you made so low a contract?—A. I don't know that you can say that it is the reason.

Q. Well, is it or is it not?—A. We took it at a flat figure.

Q. Is it or is it not?—A. What?

7495 Q. A reason why you took the lower contract.

Mr. ROSENTHAL. I find that your figures in the last contract show an increase of guaranteed cost instead of a decrease.

WITNESS. All I know is what he said. He said a decrease.

Mr. ROSENTHAL. On the face of the figures they seem to have increased it by a couple of hundred dollars.

Mr. KELLOGG. He had better change his "by." He just testified he decreased it.

WITNESS. Just let me see that.

Q. Didn't you testify that the decrease of 5 cents on the freight cars would more than offset the increase on locomotives?—A. If the proportions of the mileage are the same there as with other roads it would.

Q. Well, I wish you would be a little careful as to what you testify on these figures.—A. You are asking too many questions.

Q. I didn't ask you that. Mr. Rosenthal asked you and you swore to it.—A. Well, both of you, then.

Mr. ROSENTHAL. We will promise to be good now.

Q. You seem to want to change this every time that I take you at your word. Now, if you will settle which it is——A. The guaranty of locomtives was increased from 88 cents to $1.25, which was equivalent to 47 cents per 1,000 miles, but taking the locomotive mileage for the twelve months ending April 30, 1907, it increased

guaranteed cost on locomotives $4,407.33; the passenger-car cost was reduced 1.39 cents. That, on the mileage for that period, was $175.36 decrease. The freight-car guaranty was decreased 5.26 cents,
7496 and on that mileage was a total of $4,083.23.

Q. Well, you are mistaken again; that is 37 instead of 47, isn't it?—A. What are you talking about?

Q. That increase in locomotive is 37 instead of 47.

Mr. ROSENTHAL. Figure that out on a 37 cents increase.

WITNESS (after figuring). There was a decrease in the car guaranties of $4,260.59, and an increase in the locomotive guaranty of 37 cents per 1,000 miles, or $3,469.43, showing a decrease of $793.16 in the guaranty.

Q. Then I was right, that the last contract was the lowest of the lot?—A. Yes.

Q. Very well. Then you lost money on your contract of 1904?—A. Yes.

Q. And in between that and your contract of 1906 for 15 months some other company was lubricating the road?—A. Yes.

Q. And then you took the contract in 1906 still lower than the one in 1904?—A. Yes.

Q. Now, I ask you if the fact that some other company had the lubrication of the road had anything to do with your taking that at a lower rate?—A. I don't know that it had.

Q. And you don't know that it hadn't, either, do you?—A. No.

By Mr. ROSENTHAL:

Q. The Chesapeake & Ohio you have fully covered, haven't you?—A. Yes.

Q. Take up next the Cincinnati, New Orleans & Texas Pacific. When was your first contract made with that railroad?—
7497 A. The first contract with the C., N. O. & T. P. Railroad was made for 12 months beginning September 1, 1890, at guaranties of $2.3275 for locomotives, .360525 for passenger cars, and .1026 for freight cars. These figures are equivalent to 95 per cent of the cost to the railroad company when using other oils.

Q. Theretofore?—A. Theretofore; yes, sir.

Q. When was the next contract made?—A. The next contract was made for a period of 46 months from October 1, 1892, at guaranties of $2.21 for locomotives, .3475 for passenger cars, and .0974 for freight cars.

Q. What were those figures based upon?—A. Those figures were 90 per cent of the period prior to the first contract.

Q. Go ahead now with the historical development of those various contracts.—A. The next contract was for 24 months from July 1, 1895, at, locomotives, $1.70; passenger, cars 28 cents; freight cars, .0974. The next contract was for 36 months from July 1, 1897, at, locomotives, $1.50; passenger cars, 28 cents, and freight cars, .0876. The next contract was for 36 months from July 1, 1900, at, locomotives, $1.33; passenger cars, 24 cents, and freight cars, .0823. The [illegible]ontract was for 36 months from July 1, 1903, at, locomotives,

$1.75; passenger cars, 16 cents, and freight cars, .0823. This contract provided for a sliding scale downwards based upon the operations for the first year of that contract. This sliding scale made the guaranties for the second and third years of the contract, locomotives,
$1.73; passenger cars, .1965, and freight cars, .068. The next
7498 contract was for 5 years from July 1, 1906, at, locomotives,
$1.72; passenger cars, 20 cents, and freight cars, 8 cents.

Q. How did that compare with the prior contract?—A. The total of the last guaranties were about equal to the guaranties for 1897.

Q. Why?—A. The locomotive guaranty having been increased from $1.50 to $1.72, the passenger car was reduced from 28 cents to 20 cents and freight cars from .0876 to .08, the decrease in the passenger and freight car guaranty offsetting the increase in the locomotive guaranty, approximately.

By Mr. KELLOGG:

Q. In whose territory is the Cincinnati, New Orleans & Texas Pacific?—A. Mr. J. S. Patterson, located at Cincinnati.

Q. That is not part of the Waters-Pierce?—A. No.

Q. What other oils were they using prior to 1890?—A. I don't know. I know they were not using Galena.

Q. You know they were not using Vacuum oil?—A. No.

Q. You don't know that?—A. No.

Q. You were selling railroad lubricating oil to wholesale houses, weren't you, prior to 1890?—A. Not that I know of.

Q. Do you know whether you were or not?—A. I said I didn't know.

Q. You don't know?—A. I said I didn't know.

Q. Your agents in the field didn't sell all the lubricating oil that that company made, did they?—A. Yes.

7499 Q. Every bit of it?—A. Yes, sir.

Q. You didn't sell any, then, to wholesale houses?—A. No, sir.

Q. Never did?—A. Not that I know of.

Q. I am asking you whether you did or did not.—A. I said I didn't know.

Q. Well, say so.—A. That's what I said.

Q. Say you don't know.

Mr. ROSENTHAL. Now, don't let the examiner dictate your answers. You let him dictate his questions.

Mr. KELLOGG. He can't fool anybody by answering like that. Let him say whether he knows or not, and be frank about it.

WITNESS. I have been trying to be, Mr. Kellogg.

Mr. KELLOGG. I don't think you have.

Q. How do you know that the Cincinnati, New Orleans & Texas Pacific didn't buy its oil of some agent of the Galena-Signal Oil Company or some house handling its oil?—A. All agencies report back to the Galena Oil Company all deliveries that they make to the railroads.

Q. And you were with the company prior to 1890?—A. No; I wasn't with them.

Q. How, then, do you know it?—A. By the records.

Q. Then all you know is what you have found out by looking at the records?—A. Yes; so far as that road is concerned.

Q. Have you examined all the accounts of the earlier agents prior to 1890 to find out whether the Galena-Signal Oil Com-
7500 pany or its predecessor company sold through any agent to the Cincinnati, New Orleans & Texas Pacific Railroad?—A. The only agent we had at that time was the Alden, Spear's Sons Company.

Q. Have you examined the accounts to see whether any oil ever was sold to that company prior to 1890?—A. I didn't need to. The contract specifically states that it was 95 per cent of the previous cost when they were using other oils.

Q. Where is the contract? Let me see it.

(Mr. Rosenthal hands paper to Mr. Kellogg.)

A. If you will look in the guaranty clause.

Q. That is all the information you have on the subject?—A. That is sufficient for me.

Q. The same section that provides for that also says, "including such of our oils as you may have on hand at the beginning of this contract."—A. We put that in all of our contracts.

Q. How do you know, then, that they didn't have oil?—A. They might receive oils from a connecting line.

Q. You don't know what oils they did receive or what oils they did use, do you?—A. I know they used other oils, and that cost is based upon other oils.

Q. They must have used Galena oils, then, or they wouldn't have any on hand.—A. I don't know that they had any on hand. That was a regular form of contract in use at that time.

Q. You didn't make the contract?—A. No.

7501 Q. You weren't with the company when it was made?—A. No.

Q. You don't know anything about it?—A. I know only what that contract says.

Q. You don't know on what basis the cost previous to that contract was made?—A. 95 per cent of the previous cost.

Q. I say you don't know how that cost was figured up, do you?—A. No.

Q. You know nothing about the statements on which the cost was calculated?—A. No; but the guaranty was agreed to and put in operation and we settled under that guaranty.

Q. Then you never did look up their accounts, and all you know is from that contract?—A. I know that we settled on the basis of these figures.

Q. I know, but you never looked up the accounts prior to 1890?—A. Yes.

Q. You looked through them?—A. Just for this purpose.

Q. You looked through the books?—A. Yes.

Q. And found no accounts with that company?—A. No, sir.

By Mr. ROSENTHAL:

Q. This original contract, dated November 10, 1891, where did you get that from?—A. From out of the files in my office.

Q. The office of the Galena-Signal Oil Company?—A. Yes.

Q. Do you know Mr. Miller's signature?—A. Yes, sir.

Q. I show you the contract of the C., N. O. &. T. P. Ry., dated November 10, 1891, purporting to be signed by Charles Miller. Is that his signature?—A. Yes, sir.

Q. Do you know any of the other signatures on that con-
7502 tract?—A. I know the signature of Mr. Carroll, general manager.

Q. Is that his signature?—A. That is his signature.

Q. And when did you come with the company?—A. In December, 1893.

Q. And you got this from the files of the Galena-Signal Oil Company at Franklin, Pennsylvania?—A. Yes, sir.

Mr. ROSENTHAL. I offer it in evidence.

(The same was marked "Defendants' Exhibit 63.")

Q. I call your attention particularly to the paragraph at the bottom of the first page, which reads as follows: "In the exclusive use of the oils herein named, including such of our oils as you may have on hand at the beginning of this contract year, we hereby guarantee that the aggregate cost per thousand miles run of the lubrication of your locomotives and passenger and freight cars for the twelve months included in this contract, shall be ten per cent less than for the twelve months from October first, 1889, to October first, 1890, when other oils than ours were used. It is understood that we guarantee a saving of ten per cent of the aggregate cost per thousand miles in both locomotive and car service. Therefore should there be a saving over and above our guarantee in one service and a loss in another service, the service in which the cost exceeds our guarantee is to be credited with the saving over and above our guarantee in the other service." Now, do you know whether the Galena acted under this contract?—A. I am quite certain they did.

7503 By Mr. KELLOGG:

Q. You know that the Vacuum Oil Company, prior to 1896, was doing a very large railroad lubricating business, don't you?—A. No; I don't.

Q. You never heard of it? Did you know it in 1890, that they were doing a large business?—A. No, I didn't.

Q. You never heard that the Vacuum Oil Company ever did any lubricating business?—A. I have heard of it, but I didn't know it.

Q. I am asking you if you ever heard that they did.—A. I have heard it indirectly that they did some railroad business.

Q. They did a large railroad business, didn't they?—A. No; not a large railroad business.

Q. They quit it about 1896, didn't they?—A. I don't know when they quit it.

Q. You know they don't do it now, don't you? Don't you know they don't do it to-day?—A. I don't know that they don't do a large lubricating business.

Q. I ask you whether you know they do a large business with railroads to-day, now?—A. I don't know that they do or do not.

Q. You testified here that your company was doing 97½ per cent of the business.—A. Yes.

Mr. ROSENTHAL. In this country.

Q. In this country.—A. Yes, sir.

Q. Now, they couldn't be doing a very large business in this
7504 country, could they?—A. No, sir.

Q. Then, do you know whether they are or not?—A. No.

Q. You don't know?—A. No.

By Mr. ROSENTHAL:

Q. The Alabama & Vicksburg is treated as a part of the Cincinnati, New Orleans & Texas Pacific system, isn't it?—A. The Alabama & Vicksburg; yes, sir.

Q. What has been the historical development of those contracts?—A. The first contract made with the Alabama & Vicksburg as a separate company was made for 12 months from July 1, 1897, at a guaranty for locomotives of $1.25, passenger cars 18 cents, and freight cars .085. Prior to this contract it was covered by contracts with the C., N. O. & T. P. Railway.

Q. That is, prior to the 1897 contract?—A. Yes, sir. The next contract with the A. & V. was for 24 months from July 1, 1898, at, locomotives $1.25, passenger cars 17 cents, and freight cars 7 cents. The next contract was for 24 months from July 1, 1900, at, locomotives $1.25, passenger cars 17, freight cars .07. The next contract was for 24 months from July 1, 1902, at, locomotives $1.50, passenger cars 15 cents, and freight cars 7 cents. The next contract was for 24 months from July 1, 1904, at, locomotives $1.50, passenger cars 15 cents, and freight cars 7 cents per 1,000 miles.

Q. Is the Alabama & Vicksburg part of the Cincinnati, New Orleans & Texas Pacific system?—A. It is part of the Queen & Crescent route, which is known as the C., N. O. & T. P., Alabama & Vicksburg, N. O. & N. E., and Alabama Great Southern.

Q. With whom are the settlements made there—with the
7505 C., N. O. & T. P., or are they made with both roads?—A. There are two auditors connected with the line, one at Cincinnati and one at New Orleans. The Alabama & Vicksburg and, I think, the N. O. & N. E. come under one auditor, and the C., N. O. & T. P. and A. G. S. under the auditor at Cincinnati, but practically one system.

Q. They constitute one system?—A. One system.

Q. So that it frequently happens, it appears, that different roads constituting the same system, whose bills are paid out of the same

treasury, may have different contract prices with the Galena-Signal?—A. Yes, sir.

Q. By reason of varying conditions connected with the inception of the contract and with the historical development of the contract?—A. Yes, sir.

By Mr. KELLOGG:

Q. The Alabama & Vicksburg is a separate corporation, isn't it?—A. It is operated separately.

Q. Your contract with it is separate?—A. Yes.

Q. Your settlements are made separately?—A. Yes.

Q. And the payment of the refund is made separate?—A. I am not sure whether the Alabama & Vicksburg is treated separate from the N. O. & N. E. division or not just now.

Q. Exhibit 471 shows a separate settlement, doesn't it?—A. We have separate reports from them.

Q. And you make your refund to that company separately?—A. I am not sure as to that at the present time.

7506 By Mr. ROSENTHAL:

Q. We will take up next the Central Railroad of New Jersey. When was your first contract made with that road?—A. The Central of New Jersey, our first contract was for 36 months from March 1, 1897, at—locomotives, $1.184764; passenger cars, .5626185; freight, .0434435, these figures being 95 per cent of the cost previous to this contract when they were using other oils.

Q. Ninety-five per cent of the cost of lubrication during the twelve months previous when they were using other oils; is that right?—A. That is right.

Q. How did you get these figures—1.18, .56, .04?—A. After the contract was made——

Q. After the contract was made under which you guaranteed 95 per cent of the previous cost?—A. Yes. The railroad company furnished us statements covering their previous cost, which were afterwards audited by myself and these figures agreed upon as equivalent to 95 per cent of what it had been costing them before.

Q. That is a comparatively low locomotive and freight lubrication but a very high passenger lubrication that you found there?—A. Yes, sir.

Q. Was there any special reason for that, that you have in mind now?—A. So far as the freight car cost is concerned, that road at that time had some ten thousand what they usually called "jimmy cars," 4-wheeled cars, used about their mines, and those cars
7507 were reckoned the same as any other 8-wheel car or standard car. Consequently, they could get a low cost per 1,000 miles, reckoning each 4-wheel car as a car.

Q. Do you know why it was their passenger car lubrication ran up high? Was it because they used a high priced coach oil? Do you happen to remember that?—A. No; I couldn't give any reason for that.

Q. Wherever coach oil is used instead of the ordinary passenger car oil you get passenger car guaranties, don't you?—A. Not at all; no.

Q. That doesn't follow?—A. That doesn't follow. Our coach oil will lubricate a passenger car just as cheaply as a car oil if used economically.

Q. Well, at all events the 56 and a fraction cents per 1,000 miles passenger car lubrication was 95 per cent of what it had cost the road to lubricate its own passenger cars the year before?—A. Yes. Now, to get back to your question before, Mr. Rosenthal. The only reason for that is they were using low-grade oil at that time, and in order to get satisfactory results from it they had to use a great quantity of it on their passenger equipment.

Q. Tell us about the other contracts with the Central of New Jersey.—A. The next contract was for 5 years from March 1, 1900, at—locomotives, $1.60; passenger cars, 35 cents, and freight cars, 6 cents. The guaranty on locomotives was increased on account of larger locomotives having been put into service during the previous three-year contract, and the freight-car guaranties increased, the railroad
7508 having discarded all of those 4-wheel cars which they used about their mines and substituted large standard freight cars for them. The guaranty on passenger cars was reduced from 56 and a fraction to 35 cents because we had accomplished a reduction in the cost at that time. The next contract was for 5 years from March 1, 1905, at—locomotives, $2,25; passenger cars, 25 cents, and freight cars, 6 cents per 1,000 miles.

Q. Why was the guaranty in locomotives increased?—A. The railroad had, during the previous five years, put in a great many large locomotives, and the accumulation necessarily increased the cost. We reduced the passenger-car guaranty another 10 cents because we had practically accomplished that rate, and the freight-car guaranty remained the same.

By Mr. KELLOGG:

Q. Your first contract was made in 1897?—A. Yes, sir.

Q. You were with the company at that time?—A. Yes, sir.

Q. And you had the original figures showing the cost for the previous year to the railroad company?—A. Yes, sir.

Q. Showing the amount of oil used?—A. I don't know that I have the quantity. I have the cost, and that cost was verified by myself personally in the office of the railroad company.

Q. What price did they pay for their lubricants the previous year?—A. I don't recollect. If I remember correctly, it was about 32 cents for valve oil, 14 cents for engine oil, and, possibly, 6 or 7 cents for car oil.

Q. From whom did you get the cost?—A. From their office.

Q. You looked over their books?—A. Yes, sir.

7509 Q. Of whom did they buy their oil?—A. I don't know. That wasn't a matter that concerned me.

Q. You don't know?—A. No.

Q. Their books showed, didn't they?—A. Possibly.

Q. But that you didn't find out?—A. No.

Q. You didn't in any of these cases find out?—A. I may have known at the time, but it didn't impress——

Q. You conveniently forgot it?—A. No, sir. It didn't impress me, because I didn't care.

Mr. ROSENTHAL. You do know that they didn't get it from the Galena?

WITNESS. I do know that.

Q. How do you know that?—A. Because it didn't appear that they were buying our oils prior to that time.

Q. Was your company doing any business prior to 1897?—A. Slightly; some.

Q. They were doing some business?—A. Yes.

Q. With what companies?—A. Quite a number.

Q. They commenced business about 1897, didn't they?—A. No; they commenced business forty years ago.

Q. But most of its business they got in 1897?—A. Oh, no.

Mr. ROSENTHAL. These contracts show quite to the contrary.

Q. What was the name of your company in 1897?—A. I think it was in 1897 that the two companies were merged into the Galena-Signal Oil Company.

Q. Prior to that time one was the——A. The Galena Oil Company and the other the Signal Oil Company.

7510 Q. They were both making lubricating oil?—A. No; the Signal Oil Company was making signal oil and valve oil and the Galena Oil Company——

Q. Valve oil is lubricating oil, isn't it?—A. We consider it so.

Q. Then, why did you say it wasn't making lubricating oil?—A. I thought you meant the different kinds of lubricating oil.

Q. No. The Galena Oil Company was making lubricating oil?—A. Yes; such as coach and car oil.

Q. What was the other company making?—A. Valve and signal oil.

Q. Valve oil for locomotives?—A. Yes, sir.

Q. In your answers that the Galena Company heretofore did not sell oil to these companies, do you include both of those companies?—A. I include both of them; yes, sir.

Q. And you say that neither one of those companies ever sold any oil to the Central Railroad of New Jersey prior to 1897?—A. I don't say "ever." I say prior to the period on which these figures were based.

Q. Sold no oil—either one of those companies?—A. That entered into these figures.

Q. Well, what company did?—A. I don't know.

Q. Did the Vacuum?—A. I don't know.

Q. Will your books show?—A. No.

Q. Will the statements show?—A. No.

7511 Q. You have no information on that subject?—A. No, sir.

Q. You don't know the price they were paying for the oil, except mere guesswork?—A. No; that is my recollection of what they were paying.

Q. Have you got those original statements now?—A. I don't think I have.

Q. Did you make this statement here from a recollection of ten years ago?—A. No, sir. Those are from our settlements the first year.

Q. I mean as to the prior year's costs.—A. I made those from papers in my office, showing that they were made up at 95 per cent of the previous cost.

Q. I thought you said you didn't have the papers—the original statements.—A. I have got a statement.

Q. Showing the original cost?—A. But I have not got the quantities—that is what you are after.

Q. What did this statement from which you made this statement, contain?—A. It contains the cost.

Q. The cost per 1,000 miles run?—A. Yes.

Q. Of each service?—A. Of each service.

Q. Does it show the mileage?—A. Yes. It shows the total cost.

Q. Does it show the mileage?—A. Yes.

Q. Does it show the amount of oil consumed?—A. Not the quantity. It shows the value. We don't need the quantity to make up those figures.

Q. You need just the value of the oil for each 1,000 miles run?—A. Yes, sir.

7512 Q. And that is all it does show?—A. The total value for each service.

Q. And the quantity is not shown?—A. I don't think so.

Q. Do you know whether it is or not?—A. I am not certain.

Q. I guess you had better produce that statement.—A. We can do that.

Q. Will you do it?—A. Yes.

Mr. ROSENTHAL. Which statement is that?

WITNESS. Statement covering the previous cost, on which these figures were based.

Mr. KELLOGG. Produce all the statements you have in your office showing the previous cost.

WITNESS. All right, sir.

Mr. ROSENTHAL. For the Central of New Jersey.

WITNESS. For the Central of New Jersey.

Q. Now, you say your information in your office doesn't show the amount of oil used at all?—A. I didn't say that.

Q. I thought you just said it simply showed the cost.—A. I said I didn't know whether it showed the quantity or not. That is why you asked me to produce the figures.

Mr. KELLOGG. I wish, Mr. Taylor, that you would turn back and see what the witness said about that.

(Mr. Taylor then read the following question and answer:)

"Q. The quantity is not shown?—A. I don't think so."

Q. You don't think the quantity is shown?—A. I don't think so.

Q. Then will you tell me how you knew they were using a
7513 large amount of low-grade oil on their passenger cars?—A. I didn't say I knew. The only way I could account for it was that they were.

Q. Are you guessing at all this stuff?—A. No, sir; that is my experience.

Q. Then you don't know anything about whether they were using a large quantity of low-grade oil or not?—A. I said I based my statement on experience that I had had, and from my recollection.

Q. Then you have no particular knowledge about this road?—A. I have considerable knowledge about this road.

Q. I mean as to whether they used a large quantity of low-grade oil.—A. They must have, to get that cost on passenger cars.

Q. That is simply your conclusion?—A. Any man would arrive at that conclusion.

Q. He would?—A. Yes.

Q. Well, that is the only basis you have for stating it?—A. Yes—56 cents for passenger cars.

By Mr. ROSENTHAL:

Q. When was your first contract with the Central Vermont road?—A. The first contract with the Central Vermont was for five years from July 1, 1896, at $3 per 1,000 locomotive miles, covering the lubrication of locomotives, passenger and freight cars. And this figure is 100 per cent of what it had theretofore cost the railroad. The
next contract was for 36 months from January 1, 1900, at,
7514 locomotive, 1.35; passenger cars, 9 cents; freight cars, 9 cents. These guaranties were on the separate services, while the prior one was on locomotive mileage only; and resulted in a reduction to the railroad company of $2,041.25 per year, as compared with the previous contract. The next contract was for a three months' period at $1.35 for locomotives, 9 cents for passenger cars, and 9 cents for freight cars.

Q. When was the three months' period?—A. It was merely a continuation of that previous contract.

Q. And your last contract was made when?—A. Then there was another contract made for 36 months, from April 1, 1903, at, locomotives $1.50, passenger cars 7 cents, and freight cars 7 cents. This was again renewed for a three months' period from April 1, 1906, at the same figures.

Q. And are those all the contracts with that road?—A. Those are all the contracts with the Central Vermont.

Q. Your first contract was based upon what percentage of prior cost?—A. 100 per cent of the previous cost.

Q. Of its previous cost in doing what?—A. In lubricating the locomotives, passenger and freight cars on the basis of locomotive mileage.

By Mr. KELLOGG:

Q. The Central Vermont is controlled by the Grand Trunk, is it not?—A. It is now.

Q. Have you the statements of the Grand Trunk that I asked you for?—A. No, sir.

Q. Where are they?—A. I haven't made them up yet; I haven't had time.

7515 Q. You have had two weeks.—A. Well, we had something else to do.

Mr. ROSENTHAL. We have got a defense. You can't keep us busy furnishing you material all the time while we are working on our defense. We will do the best we can in getting those things out that you called for, Mr. Kellogg.

Q. All you would have to do would be to send over and get the contract. That is one thing that I asked for. How much time would it take you to send for the contract of the Grand Trunk?—A. I don't think you asked for the Grand Trunk contract. You asked for a statement.

Q. I asked for the contract and the settlements. Now, how long would it take you to send for the contract?—A. Not very long.

Q. You could get it by just writing a letter, couldn't you?—A. I think so.

Q. And you could get the settlement sheets by just writing a letter?—A. No, sir; it takes some time to make them up.

Q. You have to make copies of them, that is all?—A. No, sir; we would have to make them up.

Q. Well, did you send for the contract at all?—A. No; I thought they were to come along with the statement.

Q. Have you got it here in New York?—A. No, sir.

Q. I wish you would send for it. I want it.—A. How soon do you want it?

Q. Right off. —A. You can't get it right off.

Q. When will you get it?—A. Just as soon as I can.

7516 Q. When can you get it?—A. I can't promise.

Q. You decline to get the contract?—A. No, sir; we don't.

Q. Well, I want it now.—A. You can't get it now. I am here in New York.

Q. You can get it day after to-morrow, can't you?—A. I can get the contract for you.

Q. That is what I want—all the contracts of the Grand Trunk Railway. Will you do it?—A. Yes.

Q. All right. Didn't I ask for these contracts last winter, also, in January?—A. I think so.

Q. Why didn't you get them?—A. Because we expect to exclude that. That is a Canadian road.

Q. You don't expect to furnish it, then?—A. I don't know. Ask our counsel.

Q. Didn't I ask for the settlement sheets in January, also?—A. Yes.

Q. Why didn't you furnish them?—A. Ask the counsel.

Q. Were you directed not to furnish them?—A. No.

Q. Then, why haven't you done it?—A. Because that is a Canadian road.

Q. And you don't propose to furnish it?—A. I didn't say so.

Q. Well, I want to know whether you do or whether you don't.—A. Ask the counsel.

Q. Well, I have asked for a good many things, and I have been switched from one to another.

Mr. ROSENTHAL. You have got a good many things, too.

Mr. KELLOGG. Yes; but we had to keep at it to get them.

7517 WITNESS. We haven't got 3,000 men at Franklin to do this work for you. We have a limited force.

Q. You know that is perfectly absurd. You can get the contracts by sending for them.—A. You have now disorganized our office by sending for information.

Q. Now, you say this Vermont contract of the year 1900 was what percentage of the previous contract?—A. Which contract do you refer to?

Q. The one of 1900.—A. I didn't say it was any percentage. I said the first one of July 1, 1896, was——

Q. Was what percentage?—A. 100 per cent of their previous cost.

Q. Have you a statement showing the previous cost?—A. No, sir.

Q. How did you get it?—A. From the railroad.

Q. Did you get a written statement?—A. No, sir. That was agreed upon with our agent at the time as being 100 per cent of the previous cost.

Q. Were you present at the agreement?—A. No, sir.

Q. Do you know anything about it?—A. He reported it as being 100 per cent of the previous cost.

Q. He reported it—in writing?—A. When he submitted the contract.

Q. In writing?—A. I think so.

Q. Have you got the writing?—A. I don't know that I have.

Q. Do you know on what basis it was made up?—A. On the basis of 100 per cent of the previous cost.

Q. I know. But the previous cost, I am asking, on what

7518 basis it was made up. What percentage?—A. No.

Q. What the price of the oil was?—A. No.

Q. How much they used?—A. No, sir.

Q. The mileage made?—A. No, sir.

Q. Cost per 1,000 miles?—A. No, sir.

Q. You have no statement at all?—A. No, sir.

Q. From whom they bought the oil?—A. No.

Q. Don't know anything about it?—A. Don't know anything about it.

Q. You don't know what company the Central Vermont previously bought of?—A. No, sir.

Q. Never heard?—A. No.

Q. Don't know whether it was the Vacuum Oil Company or not?—A. No.

Q. Do you know it was not the Galena-Signal Oil or any of its——A. I know it wasn't the Galena Oil.

Q. Neither one of the companies?—A. No, sir.

Q. How do you know that?—A. Because it didn't appear on our books at that time.

Q. It didn't appear on the books?—A. No.

Q. Now, what are your guaranties for the Grand Trunk Railroad?—A. The present guaranties?

Q. Yes.—A. I think they are 1.60, 9, and 9; I am not sure.

Q. 9 for the passenger cars and 9 for the freight cars?—A. Yes, sir; that is my recollection.

Q. Do you remember what percentage of refund you paid back to the Grand Trunk?—A. No; I do not.

7519 Q. Isn't it over 40 per cent?—A. No.

Q. Well, what is it?—A. I don't know.

Q. You must have some knowledge, or you wouldn't know it was not over 40; haven't you?—A. I know it is less than 40.

Q. How much less?—A. I think it is about 30 per cent.

Q. How has it been in the past years?—A. I don't know.

Q. Isn't it a fact that during one year they only paid 57 per cent of the invoice price?—A. I don't remember.

Q. Why do you object to showing the Grand Trunk——A. I don't object.

Q. Then, why haven't you brought it in?—A. Because we haven't had time.

Q. You have had time since last January, haven't you?—A. No, sir. We have furnished you all the information we could possibly get out, working night and day and Sundays. We have a very limited force at Franklin, and we can't hire help whenever we want it at that point. We have neglected our own current work to get this information out for you.

Q. Well, we haven't got any information since last January.—A. You have had a whole lot of it.

Q. I haven't asked you for anything except the Grand Trunk since last January.

Mr. ROSENTHAL. Oh, yes.

A. If we had furnished you everything, we would have had to have a force of ten times the men we have got there now, to get out everything you wanted. We will give it to you just as fast as we can get it out.

Q. Don't you know that all of our exhibits that you have 7520 furnished us were put in before last January—every one of them?—A. Your exhibits?

Q. Yes.—A. Yes, sir.

Q. And that you have not furnished anything for us or made up anything for us since last January?

Mr. ROSENTHAL. Oh, yes; we have furnished information to you right along.

Mr. KELLOGG. Nothing to amount to anything. One little sheet of paper that didn't amount to anything.

Mr. ROSENTHAL. Durand wouldn't take it; it didn't please him. He threw it back at us.

Q. Have you got the Pennsylvania settlements that I asked you for?—A. I have made them up. I don't know where they are now.

Mr. ROSENTHAL. You mean you have been working on the various exhibits connected with the case—whether for the Government or for the defense?

WITNESS. Yes; whether for the Government or for the defense.

Mr. KELLOGG. Then why doesn't he say so? He knows he has not worked on a single exhibit for us since January.

WITNESS. I have furnished a whole lot of stuff since the first of January.

Mr. KELLOGG. Not to me; not to our side of the case.

Q. Now, will you name one single exhibit that you have made up at the request of the Government since January?—A. You have got a list of them there [indicating].

Q. Will you name one that you have made up since the first of January, or since January.—A. I have made up so many that
7521 I can't specify.

Q. I guess you can't—because you haven't made any.—(No response.)

By Mr. ROSENTHAL:

Q. Now, we will take up Brother Kellogg's railroad next—the Chicago Great Western. When was the first contract made with that road?—A. With the Chicago Great Western the first contract was made for two years from July 1, 1896, at, locomotives, 1.57; passenger cars, 24 cents; freight cars, 12 cents.

Q. And what were those figures based upon?—A. Those figures were 100 per cent of the previous twelve months' cost.

Q. That is, of the cost to the railroad company in lubricating its own road by using its own oils?—A. Yes, sir.

Q. Had it theretofore used the Galena oils?—A. No, sir. But I am not quite so sure about that.

Q. Well, take up the other contracts.—A. The next contract was for 36 months from January 1, 1899, at the same figures. The next contract was for 36 months, from July 1, 1903, at, locomotives, 2.37; passenger cars, 12 cents, and freight cars, 6 cents. These guaranties were equivalent to the previous figures.

Q. What do you mean by that?—A. That the mileage, the classes of service, multiplied by the respective guaranties, would be equivalent to the mileage multiplied by the guaranties of the previous contract.

7522 Q. Will you figure that out, please, and see that you are accurate on that?

(Computation is being made.)

Q. While he is working on that, will you go ahead with the historical development of that road?—A. The next contract was for 36 months from July 1, 1906, at, locomotives, 2.75; passenger cars, 12 cents; and freight cars, 5 cents. This contract provided for a sliding scale.

Q. What do you mean by that?—A. That if the actual cost at invoice prices was reduced there would be a reduction in the guaranty on locomotives proportionate to the reduction on actual cost.

Q. Go ahead now.—A. The locomotives were increased from 2.37 to 2.75 on account of larger engines, and this was partly offset by the decrease of 1 cent per thousand miles in freight car service.

Q. As a matter of fact, notwithstanding the increase in the size of locomotives, the decrease in the cost of passenger and freight car lubrication during the ten years that you had the Chicago Great Western more than offsets the increase in the cost of the locomotive lubrication, does it not? I mean, taking it from beginning to end, it is just about the equivalent?—A. About the equivalent.

By Mr. KELLOGG:

Q. Where was the Great Western getting its lubricating oil prior to 1896?—A. I don't know.

Q. Do you know that the Galena-Signal Oil Company, or
7523 one of the prior companies composing that company, did not sell to the Great Western?—A. I am not sure as to that.

Q. You don't know as to that?—A. No, sir.

Q. You mean to say that you don't know anything about it, one way or the other?—A. I said I was not sure. I don't think they did.

Q. On what did you base that 100 per cent of previous cost?—A. On the figures given us by the Great Western Railroad.

Q. Did they show the price it paid for lubricating oil?—A. No.

Q. Or the amount used?—A. No.

Q. Or the mileage made?—A. No, sir.

Q. Just a mere statement that it cost that amount?—A. Yes, sir.

Q. Have you got that statement yet?—A. No, sir.

By Mr. ROSENTHAL:

Q. Now we will take up the next road—the Cleveland, Cincinnati, Chicago & St. Louis.—A. The first contract with the Cleveland, Cincinnati, Chicago & St. Louis Railroad was for twelve months from July 1, 1890, at, locomotives, 1.5804; passenger cars, .28512; freight cars, .09027—which was 90 per cent of their cost when using other oils. The next contract was for 24 months from July 1, 1891, at, locomotives, 1.4926; passenger cars, .26928; and freight cars, .08525. This was 85 per cent of the cost prior to the first contract, or when they were using other oils. The next contract was for five years from January 1, 1898, at, locomotives, 1.18; passenger cars, 20 cents;

7524 and freight cars, .055. The next contract was for five years from January 1, 1903, at, locomotives, 1.35; passenger cars, 20 cents; and freight cars, .055. The increase in locomotive guaranty from 1.18 to 1.35 was allowed on account of increase in size of engines.

Q. Have you the original 1891 contract for this road?—A. Yes, sir.

Q. I show you defendants' Exhibit 64. Do you recognize any of the signatures to that contract?—A. Yes, sir.

Q. Which ones?—A. Charles Miller, president, per F. H. Johnston, secretary (of the Galena Oil Company, at that time), and J. H. Garahty, purchasing agent for the Big Four Railway at that time.

Q. Do you know Mr. Garahty's signature?—A. Yes, sir; very well.

Mr. ROSENTHAL. I offer in evidence defendants' Exhibit 64.

Q. Will you read into the record the 85 per cent clause in that contract, so that we will have it in the body of the record.—A. The guaranty clause of this contract reads (which is Paragraph VIII): "In the exclusive use of the oils herein named—including all of our oils that you may have on hand at the beginning of the contract year—we will hereby guarantee that the aggregate cost per thousand miles run of the lubrication of your locomotives and passenger and freight cars, for the twelve months of this contract, shall be fifteen per cent less than the aggregate cost per thousand miles run for the same service from July, 1889, to July, 1890, when other oils were used. (Paragraph IX.) If at the end of the contract year it is shown that your company has not saved fifteen per cent of the
7525 aggregate cost per thousand miles run of the lubrication of locomotives and passenger and freight cars by reason of the use of our oils, as against the cost of the same service as against the year above specified, as herein guaranteed, we hereby agree to reimburse your company a sufficient amount of money to make good our guarantee. If in case, however, it is shown that by reason of the use of our oils the saving to your company has been more than fifteen per cent of the aggregate cost for the year above specified, we are not on that or any other account to receive more than the prices herein named for our oils."

By Mr. KELLOGG:

Q. Of what company was the Big Four purchasing its oil prior to 1890?—A. I don't know.

Mr. ROSENTHAL. You know that it was not purchasing it of the Galena?

WITNESS. Yes, it was purchasing it from various companies at that time; but the companies I can't recollect.

Q. Was the Vacuum Oil Company one of them?—A. No, sir.

Q. What various companies?—A. There were various companies located along the line of the road. I am not sure who they are now.

Q. Can you name them?—A. No, I can't.

Q. Have you a statement showing its previous cost?—A. No, sir.

Q. What do you base your opinion on, then?—A. I was with the Big Four Railroad during that period, and know the figures, and made up the account.

Q. In what department?—A. In the motive power department.

7526 Q. You don't know where it bought the oil?—A. No, sir, I can't recollect the companies now.

Q. It was doing its own lubrication?—A. Yes, sir.

Q. What companies were selling lubricating oils at that time?—A. Quite a number.

Q. Name some of them.—A. There was the Brooks Oil Company; the Inland Oil Company; the Standard Oil had various branches.

Q. Name some of the branches that were selling.—A. I can't.

Q. Well, the Brooks was purchased and acquired by the Standard, was it?—A. I don't know.

Q. So was the Inland. Well, as a matter of fact, doesn't the Galena own the Brooks Company now?—A. No, not that I know of.

Q. You never heard of that?—A. No, sir.

Q. Don't your balance sheets show the income from the stock of the Brooks Company?—A. No.

Q. Never did show it?—A. I don't know.

Q. Wasn't the Inland Company acquired by some of the Standard companies?—A. I don't know.

Q. Well, what other company? You say "various Standard companies."—A. I don't know who they are now; I can't recollect them.

Q. These two were the only ones you can remember—the Brooks Company——A. The Brooks, Inland, and the Shurmer-Teagle Company, at Cleveland, and others.

Q. Don't you know that the Shurmer-Teagle Company was acquired by one of the Standard companies?—A. No, I don't.

7527 Q. Don't know anything about it?—A. No, sir.

Q. Never heard of it?—A. No, sir.

Q. Didn't sit in court last fall and hear the whole thing told of?—A. No, I didn't sit in court.

Q. Never heard of it at all?—A. No, sir, I did not.

Q. That is news to you, is it?—A. Only what I hear in the papers.

Q. What other company?—A. I don't know of any others.

Q. Well, just fresh up your recollection.—A. I don't know.

Q. Can't think of any others. In all your knowledge, you never heard of the Vacuum Company selling lubricating prior to that time?—A. I heard of them, yes; but not to railroads.

Q. Not to railroads?—A. No, sir.

Q. And you never knew that the Vacuum Company sold to railroads?—A. No, sir.

Q. Never?—A. No, sir.

Q. Never heard of it?—A. I said I heard of it.

Q. Oh! Don't you know, as a matter of fact, that the Standard Oil Company directed the Vacuum Company to go out of the rail-

road business, and their contracts were all turned over to your company?—A. No, sir, I don't know anything about it.

Mr. ROSENTHAL. Neither does anybody else. Don't let the question worry you.

Mr. KELLOGG. It has been testified to in this case.

Mr. ROSENTHAL. Oh, no, it hasn't.

Q. You can't recollect any other company that was selling them?—A. I said I didn't.

7528 Q. Now, do you testify that the Galena-Signal Oil Company never owned the Brooks Company?—A. I don't know.

Q. You are the auditor, aren't you?—A. Yes.

Q. You never saw any statement which would show that the Galena Company owned or controlled the Brooks Company?—A. No, sir.

Q. Did you ever hear of such a statement?—A. No, sir.

Mr. ROSENTHAL. Isn't that a little bit farfetched?

Mr. KELLOGG. No; he has testified that that was one of the companies that were selling oil to the Big Four.

Mr. ROSENTHAL. Whether a witness has ever heard of a thing or not?

Mr. KELLOGG. Well, he has been testifying to what he has heard, most of the time.

Mr. ROSENTHAL. I think not. I haven't much objection to it, but it seems to me to be a little farfetched.

Q. Are you losing money on the Big Four contract?—A. Yes.

Q. Have been losing money on it for ten years?—A. Yes.

Q. Why are you losing money on that? What reason is there for your doing it?—A. In the first place, we have got a very low guaranty, as compared with the actual cost.

Q. Well, you have made several contracts since 1898, haven't you?—A. Only two since 1898; two five-year contracts.

Q. Have you lost money on it since 1890?—A. I don't know how the operations were during 1890 and 1891; I don't remember.

Q. Well, since 1891.—A. Since the last two contracts, from January 1st, 1898, we have lost money.

Q. How was it from 1891 to 1898?—A. We only had it two

7529 years, from July 1, 1891, up to 1893.

Q. And then what company had it?—A. I don't know.

Q. There was a spell there when you didn't have it?—A. Yes.

Q. From 1893 to 1898?—A. Yes, sir.

Q. What company did have it?—A. I don't know.

Q. When you took the contract again did you reduce the guaranties?—A. When we took it in 1898 it was less than it was in 1891.

Q. Then for ten years you have been losing money on that?—A. Yes.

Q. Why didn't you raise the guaranty?—A. We did.

Q. Why didn't you raise it enough to cover your loss?—A. We thought we had sufficient at 1.35.

Q. Did you think so during all that time?—A. We did when we made that last contract.

Q. You made the guaranty 1.35, and the cost for the year preceding was 2.49, wasn't it?—A. Yes.

Q. You thought 1.35 would cover it, did you?—A. We had assurances that we could make that figure.

Q. And the cost has been increasing instead of decreasing, has it?—A. Yes; unfortunately for us.

Q. That is one of the companies you are willing to take at a loss, isn't it?—A. No.

Q. Now, what companies are you making it up out of?—A. I don't know. It is part of this New York Central system.

Q. Are you making it up out of the balance?—A. I think we are making some of it.

7530 By Mr. ROSENTHAL:

Q. That Big Four road (the C., C., C. & St. L.) is part of the New York Central system, is it not?—A. Yes, sir.

Q. Of which Mr. William Rockefeller is a director, according to the statement of Government counsel?—A. According to the statement of counsel here.

Q. You know that one of the roads of which he is a director is getting its oil from the Galena Oil Company in such a way as to result in a loss to the Galena Company?—A. Yes, sir.

By Mr. KELLOGG:

Q. Is Mr. Rockefeller a director of the Big Four road?—A. I don't know.

Mr. ROSENTHAL. No—of the New York Central.

Q. Does the New York Central own all of the stock of the Big Four?—A. I understand it owns a big portion of it.

Q. You know it doesn't own it all, don't you?

Mr. ROSENTHAL. The Big Four trains are now marked "New York Central System," are they not?—A. Yes, sir—all the equipment.

Mr. ROSENTHAL. Or "New York Central Lines?"

WITNESS. Yes, sir.

Q. Do you know that the New York Central owns all the stock of the Big Four?—A. No, sir, I do not.

Mr. ROSENTHAL. That is one of the things that he has heard.

Q. Isn't it a fact that it doesn't?—A. No, I don't know anything about it. I do know that it is controlled by the New York Central system of lines, and forms part of it.

7531 Q. Isn't it a fact that the New York Central and the Lake Shore & Michigan Southern didn't obtain control of the Big Four until about 1900—between 1900 and 1901?—A. No, sir.

Q. You swear that is not a fact?—A. I know from my connection with the Big Four Railway that we were working very closely with the New York Central system even in 1890.

Q. Sure you were?—A. Yes, sir.

Q. But you don't know that they controlled it by a majority of the stock?—A. No, sir. I knew it was dominated, even at that time, by the New York Central.

Q. Now, going back to that Brooks Oil Company, I show you the balance sheet of the Galena-Signal Oil Company for six months ending December 31, 1904 (petitioner's Exhibit 274 A) furnished by the Galena-Signal Oil Company, which shows the Brooks Oil Company charged off $4,500; and the next statement showing the Brooks Oil Company charged off $9,000 (1906). Did you ever hear of that?—A. No, sir.

Q. Never heard of it?—A. No, sir.

Q. And yet you are the auditor of the company?—A. Yes; I didn't make up that balance sheet.

Q. You didn't make it up?—A. No.

Q. What does it mean?—A. I don't know.

Q. You don't know what that means?—A. That is made up in our comptroller's office.

Q. You are not bookkeeper enough to know what that would mean?—A. No, sir, I wouldn't know what that meant.

Q. Tell me why the Signal Oil Company would charge
7532 off the Brooks Company, if it didn't own it?—A. I don't know anything about it.

Q. You don't?—A. No, sir.

Q. It would indicate that it owned it and had charged it off to depreciation, wouldn't it?—A. I don't know what it indicates.

Q. Aren't you bookkeeper enough to know that?—A. No, sir—not in that line.

Q. Don't you know anything about it?—A. No, sir. I wouldn't say what an item means until I know what it does mean.

Q. You think it wouldn't mean anything in there?—A. Not to me.

Q. It doesn't mean anything at all?—A. Not to me.

By Mr. ROSENTHAL:

Q. Have you finished that Chicago Great Western computation?—A. Yes.

Q. Will you let us have those figures now?—A. The Chicago Great Western figures, of 2.37 for locomotives, 12 cents for passenger cars, and 6 cents for freight cars, on the mileage taken from these statements, amount to a total of $36,370.35. On the guaranties of 1.57 for locomotives, 24 cents for passenger cars, and 12 cents for freight cars, the total cost would be $36,259.34, or about $80 between them.

Q. Now take up next the Chicago, St. Paul, Minneapolis & Omaha. Have you made any search of the records for the purpose of finding
the first contract made with that road?—A. Yes, sir. I find
7533 the first contract with this road was from June 1, 1884, to June 1, 1885, at 90 per cent of the cost for the previous 12 months.

Q. I show you defendants' Exhibit 65 and ask you what that is, and where you found it?—A. This is a letter of Charles Miller, president of the Galena Oil Works, Limited, dated June 1, 1884,

addressed to W. H. S. Wright, purchasing agent of the Chicago, St. Paul, Minneapolis & Omaha Railway, at St. Paul, Minnesota, and it reads——

Q. No, where you found it.—A. This letter was found in the files in my office at Franklin, Pa.

Q. By whom is it signed?—A. It is signed by Charles Miller, president of the Galena Oil Works, Limited, and W. H. S. Wright, purchasing agent of the Chicago, St. Paul, Minneapolis & Omaha Railway.

Q. Now, that is the basis, is it, of your statement here, that the first contract with this road, from June 1, 1884, to June 1, 1885, was at 90 per cent of the cost for the previous 12 months?—A. Yes, sir.

Mr. ROSENTHAL. I offer in evidence defendants' Exhibit 65. I want that copied in the body of the record, as well as made an exhibit.

(Defendants' Exhibit 65 is as follows:)

(Letterhead, "GALENA OIL WORKS, LIMITED.")

"*Franklin, Pa., June 1st, 1884.*

"W. H. WRIGHT, Esq.,
"*Purch. Agent, C., St. P., M. & O. Ry. Co.,*
"*St. Paul, Minn.*

"DEAR SIR: We propose to furnish your Co. with your full 7534 supply of Galena engine and Galena car oils, the same to be delivered in tank cars at Chicago, for one year from date at the following prices:

"Galena engine oil, 28 cents per gallon.

"Galena car oil, 18 cents per gallon.

"Should you at any time desire to purchase the oil in barrels, the price to be two (2) cents per gallon more than the above prices.

"The prices above named are the same as given to the Chicago & North Western Ry. Co., and we hereby agree that you shall, during the year, have the same prices for the same oils that we charge the Chicago & North Western Ry. Co.

"In the use of these oils we guarantee to effect a saving of 10 per cent to your Co., based upon the cost of lubricating your equipment the previous year; that is to say, from June 1st, 1883, to June 1st, 1884, so that the cost of lubricating your equipment from June 1st, 1884, to June 1st, 1885, shall be 10 per cent less than from June 1st, 1883, to June 1st, 1884.

"Of course it is understood that should we be able by reason of the care which we propose to give to the lubricating of your equipment to effect a saving greater than 10 per cent, your Co. to have the full benefit, and should the average saving for the year not amount to 10 per cent, we agree to reimburse your Co. with the difference.

"We also agree to furnish men free of cost to your Co.—other than that you are to furnish the men free transportation over your

road and with such letters from the heads of your departments
7535 to the employees of the road that will enable us to suggest how the oil shall be used.

"The system of reports to be the same as are now being used by the Chicago & Alton and Chicago, Milwaukee & St. Paul Ry. Companies; or, should it be desirable on your part to have a different system of reports which will give the same results, you to have the privilege of arranging such a system.

"The oil furnished for winter months, both engine and car, shall stand a cold test of 5 to 10 degrees below zero.

"Yours, truly,

"CHAS. MILLER, *Prest.*,
"*Galena Oil Works, Limited.*

"This proposition is accepted.

"W. H. S. WRIGHT, *P. A.*,
"*C., St. P., M. & O. Ry.*"

Q. Do you also know Mr. Wright's signature?—A. Yes, sir.

Q. Is that his signature?—A. That is his signature.

Q. And that is Mr. Miller's signature attached to that letter?—A. Yes, sir.

Q. Did you make any search, then, for later contracts?—A. Yes, sir.

Q. Immediately following this 1884–85 contract?—A. After this the first contract which we could find was for two years from January 1, 1894, at a guaranty of 22 cents per 1,000 miles for passenger cars only.

Q. So from 1885 to 1894 you find no records?—A. No tangible records.

7536 Q. Was the road, from 1885 to 1894, however, using Galena oils?—A. Yes, sir; so far as I could determine from the records.

Q. When was the next contract made of which you have a record?—A. The next contract is for three years from January 1, 1896, at, locomotives, 1.505; passenger cars, 20 cents, and freight cars, 12½ cents; these figures being 90 per cent of the cost for the 12 months prior, when they were using Galena oils.

Q. Now, that contract ran for three years, and then you made a contract in 1899 for how long?—A. For five years.

Q. At the same figures?—A. At the same figures.

Q. And then again, January 1, 1904——A. For two years, at, locomotives, 1.86; passenger cars, 16 cents, and freight cars, .1135.

Q. Why was the increase made in the cost of locomotive lubrication in the 1904 contract?—A. The increase in the locomotive lubrication was due to larger engines coming in during the previous contract.

Q. That was partially offset, however, by——A. By the decrease in passenger car and freight car guaranties.

Q. When was your last contract made?—A. The last contract was for 36 months from January 1, 1906, at, locomotives, 1.80; passenger

cars, 16 cents, and freight cars, 9 cents. This contract provided for a sliding scale downwards, and a bonus was allowed the railroad company as a further inducement to assist us in reducing the actual cost.

Q. And that contract is still in operation?—A. Yes, sir.

7537 By Mr. KELLOGG:

Q. I notice in this letter (defendants' Exhibit 65) this language: "The system of reports to be the same as are now being used by the Chicago & Alton and Chicago, Milwaukee & St. Paul Ry. companies."—A. Yes.

Q. Then it is a fact that you were selling the Chicago & Alton in 1884, and receiving a system of reports, is it not?—A. Apparently they were using it at that time; but we had no record of it.

Q. And you were receiving reports?—A. Yes; according to that letter.

Q. Now, that would indicate that you got reports showing the mileage, the cost of lubricating per 1,000 miles of each class of equipment, wouldn't it?—A. Yes; that letter would indicate it.

Q. Then you are mistaken when you say the Chicago & Alton didn't have a guarantee on its oils, aren't you?—A. No; I am not mistaken.

Q. Why would they be reporting that?—A. I said the earliest record to be found shows this line using Galena oils, from January 1, 1890, to April 1, 1900, without guaranty. The records were very incomplete during the 80's.

Q. You say the earliest record found——A. To be found.

Q. To be found, shows also that it was using the oil without a guaranty?—A. Yes, sir.

Q. Now, what records? This record would show the contrary, wouldn't it?—A. No; that doesn't show anything. We re-

7538 ceive reports sometimes when a road doesn't have a guaranty.

Q. What would you receive a report for, showing the cost per 1,000 miles run, if they didn't have a guaranty?—A. To show the operations with our oils.

Q. Do you know you had such reports from the Chicago & Alton?—A. No; I do not.

Q. This would indicate it, would it not?—A. That would indicate it; yes [defendants' Exhibit 65].

Q. Now, isn't it a fact that other roads might be using Galena oils and not show in your records?—A. It might have been.

Q. Now, in the contract of the Omaha Company, beginning January 1, 1904, did you not make a guaranty exactly equal to the invoice cost per 1,000 miles run during the preceding year?—A. We made the locomotive guaranty practically equivalent to what it had been costing the previous year. We made the guaranty on passenger cars what it had been costing, showing a reduction of 4 cents in passenger service, and reduced the freight-car guaranty from 12½ to what we had accomplished during the last year of that contract.

Q. So that the three guaranties were each equal to what it cost the preceding year?—A. Practically, yes.

Q. Now, prior to 1884, when you made this contract with the Omaha Company, of what company had it been buying its oil?—A. I don't know.

Q. Don't know anything about that?—A. No, sir.

Q. You don't know what the basis of its cost was?—A. It was 90 per cent of its previous cost.

Q. Well, I say you don't know what the basis of the previous
7539 cost was—at what price the oil was sold?—A. No, sir.

Q. How much was used?—A. No, sir.

Q. Or anything about it?—A. No, sir.

Q. You have their statement simply?—A. I even haven't got their statement. It was simply this contract that we took at that basis.

By Mr. ROSENTHAL:

Q. Now take up the Chicago & Northwestern next. It is a little out of its order, but it is a short one. When was your first contract with that road?—A. The first guaranty contract was made in the year 1875, but there is no record on file covering that contract.

Q. What is the first guaranty contract of which you have a record?—A. The first guaranty contract of which we have a record is for passenger cars, from January 1, 1891, at 22 cents per 1,000 miles. The next contract is for 36 months from January 1, 1896, at, locomotives 1.50; passenger cars 20 cents; and freight cars 8½ cents. The locomotive and freight car guaranty is 90 per cent of the cost for the 12 months prior to that contract. The passenger-car figure was a flat guaranty. The next contract is for five years from January 1, 1899, at the same figures. The next contract is for an indefinite term, from July 1, 1904, at, locomotives 1.70; passenger cars 20 cents, and freight cars 8 cents per 1,000 miles. The increase in locomotive guaranties was allowed on account of larger engines having been introduced into the equipment and is partly offset by
7540 the decrease in freight-car guaranty. This contract provides for a sliding scale downwards, and a bonus was offered for falling below the guaranty which had been accomplished.

Q. By "an indefinite period," in connection with the last contract, you mean that you were to continue to operate indefinitely on the basis of those figures?—A. Yes, sir; until either party gave six months' notice to discontinue it.

By Mr. KELLOGG:

Q. Your first contract was made in 1875, you say?—A. I understand so.

Q. You have furnished that company its lubricants ever since?—A. I think so.

Q. Then the 90 per cent contract of 1896 was made upon your own oils and your own prices for the previous year?—A. Yes, sir.

Q. And that was full invoice price?—A. Yes, sir. A pretty good record, too!

(At this point the hearing was adjourned until the morning of Wednesday, June 24, 1908, at 10.30 a. m.)

7541 ROOM 722, CUSTOM-HOUSE, NEW YORK CITY,
Wednesday, June 24, 1908—10.30 a. m.

The hearing was resumed before the special examiner, Hon. Franklin Ferriss, at the above time and place.

Present: On behalf of the petitioner, Mr. Frank B. Kellogg and Mr. Charles B. Morrison; on behalf of the defendants, Mr. Moritz Rosenthal, Mr. F. L. Crawford, and Mr. W. Cleveland Runyon.

LEWIS R. SPEARE, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. ROSENTHAL:

Q. What is your full name?—A. Lewis R. Speare.

Q. Where do you live?—A. Boston.

Q. How long have you lived there?—A. Since I was born.

Q. How long ago is that?—A. Forty-seven years ago.

Q. What is your business?—A. Oil business.

Q. With what firm are you connected?—A. The Alden, Speare's Sons Company.

Q. That company is the successor of what other company?—A. Speare, Gregory & Company.

Q. Speare, Gregory & Company was a copartnership doing business in Boston?—A. Yes, sir.

Q. How long were you connected with the firm of Speare,
7542 Gregory & Company? Beginning when?—A. I couldn't give you the exact year, sir.

Q. Approximately?—A. Something like 1882.

Q. Was the Speare of Speare, Gregory & Company, your father?—A. Yes, sir.

Q. You were active in the business in the year 1884, were you?—A. I was.

Q. Do you know of the making of the contract at that time with the Atchison, Topeka & Santa Fe Railway Company?—A. Yes, sir.

Q. I show you defendants' Exhibit 61. Have you ever seen that before?—A. Yes, sir.

Q. Where?—A. At my office, in Boston.

Q. When?—A. In 1884 when the contract was made.

Q. What is defendants' Exhibit 61?—A. A contract of Speare, Gregory & Company with the Atchison, Topeka & Santa Fe road.

Q. Well, it is a copy of the contract?—A. It is a copy of the contract; yes, sir.

Q. What did you do with the copy, in 1884, when you say you saw it there in the office of Speare, Gregory & Company?—A. I mailed that copy to the Galena-Signal Oil Company at Franklin, Pennsylvania, as a copy of the contract which we had made with the Atchison road for the use of Galena oils on their road.

Q. Is that a correct and accurate copy of the original contract that was made with the Santa Fe?—A. I believe it is, sir.

Q. Is there any writing upon it that enables you to identify
7543 it as the copy that you sent at that time?—A. Yes. My partner, Mr. Gregory, has interlined "for itself and leased lines" here, in his handwriting.

Q. Do you know what became of the original contract that you made with the Santa Fe?—A. Yes, sir. The old papers of Speare, Gregory & Company were packed in cases and sent to our factory at East Cambridge, which was afterwards destroyed by fire, and we lost all those old papers.

Q. And you have made a search for that original contract, have you?—A. I have.

Q. With what success?—A. I have not been able to find any trace of the old contract business of the railroads; these were all destroyed in the fire.

Q. Entirely aside from the copy of that contract which you hold in your hand, marked "Exhibit 61," have you an independent recollection of the contract having been entered into at that time?—A. Yes, sir.

Q. With the Santa Fe?—A. Yes, sir.

Q. I call your attention particularly to one provision of that contract, namely, the provision guaranteeing a saving to the road of 10 per cent. Have you any independent recollection of that particular provision of the contract?—A. Yes, sir.

Q. What is your recollection as to whether that was a part of the contract?—A. It was a part of the contract; the condition under which we made the contract—a 10 per cent saving.

Q. Did Speare, Gregory & Company, as agents for the Ga-
7544 lena, at that time, enter into many contracts for lubrication with railroad companies?—A. Quite a number.

Q. And what do you say as to whether the 10 per cent savings clause entered into all of those contracts?

Mr. KELLOGG. That is objected to as incompetent and immaterial.

Mr. ROSENTHAL. Do you object to the form or to the substance of the question?

Mr. KELLOGG. Both.

Mr. ROSENTHAL. Very well. The question is leading; there is no doubt about that.

Q. Directing your attention particularly to what is known as the 90 per cent clause, what part, if any, did that play in the making of the contracts which Speare, Gregory & Company made at that time with the different railroad companies for the Galena-Signal?

Mr. KELLOGG. Same objection.

A. We made all our contracts on that basis.

Q. Explain that a little more fully, will you please?—A. We made all our contracts guaranteeing the railroads a saving of at least 10 per cent in the use of Galena oil.

Q. Do you mean by that that you made your contracts guaranteeing these roads to lubricate the roads for 90 per cent of what it had theretofore cost the railroads to lubricate themselves?—A. Yes, sir.

Q. In those first contracts which you made with railroad companies, do you know whether or not those companies with whom you made contracts had theretofore been lubricating their own
7545 roads?—A. They had been buying their oil in the open market and lubricating their own roads. I mean by that expression—of course they lubricate their own roads anyway; but they had been buying their oils in the open market previously.

Q. And do you know whether or not those roads had used Galena oils?—A. None of them had previously used Galena oils.

Q. Do you remember any other roads than the Santa Fe specifically with whom Speare, Gregory & Company made contracts for lubrication in those early years?—A. Yes, sir.

Q. Name them, please.—A. They contracted with the St. Louis & San Francisco, the Mexican Central, the Atlantic & Pacific, the Eastern Railroad (Boston & Maine, known then as the Eastern Railroad), the Boston & Maine (the original Boston & Maine), the Fitchburg Railroad, the Connecticut & Passumpsic. Those are all the names that occur to me.

Q. Is it or is it not true that one of the strong features of that contract, one of the arguments used by Speare, Gregory & Company in inducing the railway companies to enter into that contract, was the 90 per cent clause?—A. Absolutely.

Cross-examination by Mr. KELLOGG:

Q. What is your business now?—A. President of Alden, Speare's Sons Company.

Q. Where is your headquarters?—A. Boston.

Q. What is the business of the concern?—A. Oil business and general mill supplies.

7546 Q. What kind of oils do you sell?—A. Everything except paint oils.

Q. For what companies? Do you sell your own oils or do you sell Standard oils?—A. We sell our own oils; that is, we do not manufacture oils—we buy and sell oils.

Q. Of whom do you buy?—A. Of different refineries.

Q. Standard Oil Company?—A. Partially.

Q. Do you sell lubricating oils?—A. Yes, sir.

Q. Of whom do you buy?—A. The Standard Oil Company, the Union Oil Company of Philadelphia, and so on.

Q. What do you mean by "so on?"—A. Why, we buy of a great many different concerns.

Q. Do you buy of the Vacuum Oil Company?—A. No, sir.

Q. Of what company do you buy your lubricating oils—what Standard company?—A. The Thompson & Bedford department of the Standard Oil Company.

Q. Where is that department situated?—A. 26 Broadway.

Q. They handle lubricating oils, do they?—A. They do.

Q. Do they handle oils manufactured by the Vacuum Oil Company?—A. I couldn't tell you, sir.

Q. You don't know what company manufactures them?—A. No, sir.

Q. Do you sell any to railroads now?—A. No, sir.

Q. You sell lubricating oils outside of railroads?—A. Yes, sir.

Q. Is the Standard Oil Company interested in your concern?—A. No, sir.

7547 Q. Has no interest in it?—A. None whatever.

Q. You simply buy of them, or act as agents for them?—A. We simply buy of them when it is to our interest to.

Q. You say you commenced in the firm about 1882?—A. Yes, sir.

Q. Prior to that your father was in the business?—A. Yes, sir; and he was after that.

Q. During those years from 1882 on, were you selling lubricating oils?—A. Yes, sir.

Q. For what companies?—A. You refer to the railroad trade?

Q. Yes.—A. For the Galena-Signal Oil Company.

Q. Exclusively?—A. From about 1884 we commenced selling oils for the Galena-Signal Oil Company.

Q. Exclusively for that company?—A. Exclusively for that company for the railroad trade; yes, sir.

Q. Prior to 1884, for what company did you sell?—A. For any company that was engaged in the refining business that we could make the best terms with.

Q. Did you ever do any business with the Vacuum?—A. Never.

Q. Or Thompson & Bedford?—A. Yes, sir; Thompson & Bedford.

Q. Now, during those years, both prior and after 1884, Thompson & Bedford handled the lubricating business for New England, didn't they, for the Standard Oil Company?—A. I don't know anything about it; no, sir.

Q. They were part of the Standard Oil Company at that

7548 time, were they not?—A. I don't know, sir.

Mr. ROSENTHAL. No.

Q. When did they become connected with the Standard Oil?—A. I don't know, sir.

Q. When did they move their business to 26 Broadway?—A. I couldn't tell you that.

Q. Haven't you any idea?—A. No, sir; I haven't. I haven't any idea when it was. I knew when they did it; but when they did it I couldn't tell you.

Q. It was a good many years ago, wasn't it?—A. Quite a number of years ago; yes, sir. They were in business long before they moved there, though.

Q. Both prior and since 1884 you bought of Thompson & Bedford, did you?—A. Partially.

Q. And prior to 1884 you sold to railroads, did you?—A. Yes, sir.

Q. Throughout New England?—A. Yes, sir; throughout the country.

Q. Throughout the country generally?—A. Yes, sir.

Q. And bought of Thompson & Bedford?—A. Partially.

Q. Of what other companies—railroad lubricants, I mean?—A. Any of the so-called outside companies who would sell us at reasonable prices.

Q. Name some of them.—A. I couldn't tell you.

Q. You can only think of Thompson & Bedford?—A. I can only think of Thompson & Bedford. Most of the other companies have gone out of existence or changed their names or
7549 something of that kind.

Q. You bought most of your lubricating oil of Thompson & Bedford, did you?—A. No; bought part of it.

Q. A large part of it?—A. No; a small part.

Q. You can't name any other companies at all?—A. I could tell you that it was Mr. Jennings' companies.

Q. Jennings is a Standard Oil man, isn't he?—A. He wasn't. He is not.

Q. He has been for a great many years, hasn't he?—A. Jennings?

Q. Yes.

Mr. ROSENTHAL. Not that Jennings.

WITNESS. No; not this Jennings that I refer to.

Q. Where was his business?—A. He was in Cleveland, connected at one time, I believe, with the Standard Oil Company, but he represented outside companies in New York, and he billed us through different companies; the names I can't remember.

Q. Well, he was connected with the Standard Oil Company for many years, wasn't he?—A. No; not to my knowledge.

Q. I thought you said he was connected with it at Cleveland?—A. I understand that he at one time. But you said "many years." I only knew of him being connected a very short time.

Q. What other company that you remember?—A. Mr. Jennings' particular companies we bought our bulk of lubricating oils of at that time, sir.

7550 Q. What was Mr. Jennings' first name?—A. I think his initials were P. S. Jennings.

Mr. ROSENTHAL. Peter, was it?

WITNESS. I am not sure.

Q. You don't remember his first name?—A. No, sir.

Q. At what time was he connected with the Standard Oil Company?—A. I don't know as he ever was.

Q. I thought you said he was.—A. I understand, in a general way, that he represented the Standard Oil Company at Cleveland. But I didn't have much to do with him then.

Q. Do you know O. B. Jennings?—A. No, sir; I think not.

Q. You bought principally of Mr. Jennings, you say?—A. Yes, sir—his companies.

Q. What was the name of his company?—A. I can't remember. He had various names. The Columbia was——

Q. The Columbia Oil Company?—A. Yes, something of that kind; "Columbia" something or other. There are so many Columbia companies that I can't remember which the tail of the kite was.

Q. That was principally prior to 1884, was it, that you bought of Mr. Jennings?—A. Yes, sir.

Q. And sold to railroad companies?—A. Yes, sir.

Q. That you didn't sell under lubricating contracts at that time?—A. No, sir.

Q. Just sold outright, by bulk. Well, after 1884, did you handle railroad lubricants exclusively for the Galena Company?—A. Practically so; yes, sir.

Q. For how many years?—A. About 15 or 16 years.

Q. Down to about 1900?—A. Yes, sir.

7551 Q. Since then have you handled any for that company?—A. No sir, not for the Alden, Speare's Sons Company.

Mr. ROSENTHAL. You store the oil there now, don't you?

WITNESS. Yes, sir.

Q. You handle oil for that company, do you?—A. We act as their warehouse agents in Boston.

Q. For New England territory?—A. Yes, sir.

Q. And you are still in that business at the present time?—A. Yes, sir.

Q. During those years from 1884 to 1900, where did you sell oil for them?—A. All over the United States; wherever we could.

Q. All over the United States—making contracts with railroads?—A. Yes, sir.

Q. Selling it in bulk, without contracts, also?—A. No, sir.

Q. Most all in contracts?—A. All in contracts, with one exception.

Q. What exception?—A. The Old Colony Railroad.

Q. Well, did you sell most all of the New England railroads?—A. Yes, sir.

Q. And other railroads in the country?—A. Yes, sir.

Q. Sell on commission?—A. Yes, sir.

Q. And, with the exception of the Old Colony, you made contracts?—A. Yes, sir.

Q. Since 1884 you haven't handled any railroad lubricants except the Galena?—A. Yes, sir.

Q. You have bought no railroad lubricants of Thompson

7552 & Bedford since then—for railroads, I mean?—A. We may have bought a little; I couldn't answer that. We could sell any oils we saw fit. If the railroads called for them, we would sell them to them; but we made no business of it.

Q. Where do you now get the bulk of your lubricating oil?—A. Union Petroleum Company, Philadelphia.

Q. Do you get any from Thompson & Bedford?—A. Yes, sir.

Q. They are Standard Oil?—A. I don't know, sir.

Q. Office 26 Broadway, you said?—A. Yes, sir.

Q. You don't know whether they belong to the Standard Oil or not?—A. Only by hearsay, sir.

Mr. ROSENTHAL. Well, that goes here.

Mr. KELLOGG. It has been going for several days.

Mr. ROSENTHAL. It has been going for the last year.

Q. They are so reputed to be, are they not?—A. Yes, absolutely.

Q. Did you ever hear of the Vacuum Oil Company?—A. Yes, sir.

Q. Did you ever do any business for it?—A. Never.

Q. What company handle the Vacuum Oil Company's lubricating oils?—A. I don't know of any that do.

Q. You don't know anything about it?—A. They handle their own.

Q. Did you ever have any dealings with Swan & Finch?—A. Yes, sir.

Q. Borne & Scrymser?—A. Yes, sir, before they were supposed to be taken over by the Standard Oil Company.

7553 Q. About when was it that they were supposed to be taken over by the Standard Oil Company?—A. I think that was 15 years ago or so.

Q. Are there any independent lubricating companies in New England?—A. Do you mean doing business in New England?

Q. Yes.—A. As refiners?

Q. Yes.—A. There are no refiners in New England at all.

Q. Are there any independent companies selling lubricants in New England?—A. Why, yes; as far as I know, there are.

Q. Who are they?—A. The Union Petroleum Company I believe to be an independent company.

Q. They are selling through you?—A. No, they are not; they are selling to us, and selling to others, too; competing with us.

Q. Do you know of any selling railroad lubricants in that territory—any independent concern?—A. I know of other concerns selling railroad lubricants.

Q. To railroads?—A. Street railroads.

Q. I mean to steam railroads.—A. No, I do not know of any in New England.

Q. So that at one time Borne & Scrymser, Swan & Finch, and Thompson & Bedford, were independent concerns selling lubricating oils and other oils in New England, were they?

Mr. ROSENTHAL. Do you know anything about that?

WITNESS. I don't know anything about whether they were or were not independent. I don't know whether they are now or not.

7554 Q. They were reputed to be independent, weren't they?—A. I can't say that they were; no.

Q. Were they reputed to be Standard Oil concerns?—A. They have been reputed on both sides of the fence.

Q. On which side of the fence are they now?—A. I couldn't tell you, sir.

Q. On which side are they reputed to be?—A. Borne & Scrymser, Thompson & Bedford, and Swan & Finch?

Q. Yes.—A. They are reputed to be Standard Oil.

Q. At what time were they reputed to be on the other side of the fence—as independents?—A. As far as I know, they had been until this investigation was started; except Thompson & Bedford—they were never reputed to be independent at all, as far as I know.

Q. Prior to the starting of this investigation these concerns were known to be independents; that is, they were reputed to be independents, were they, except Thompson & Bedford? Is that right?

Mr. ROSENTHAL. Wait a minute, now. I object to that, and I instruct the witness, if I can give an instruction, not to answer, on the ground that it is not cross-examination, hasn't anything to do with the direct examination, and the witness is under no obligations to answer, and he doesn't pretend to know anything about it, anyway.

Q. Do you decline to answer?—A. Yes, sir.

Q. Is your company the agent for the Galena-Signal Oil Company for any New England railroads now?—A. No, sir.

7555 Q. How long since you ceased to be?—A. About 10 or 11 years ago.

Q. Now, you say all the railroads that you took for the Galena-Signal you took at 90 per cent of previous cost to the railroad?—A. Well, that contract of ours was worded "10 per cent saving."

Q. That is 90 per cent of previous cost, isn't it?—A. Absolutely.

Q. Now, let's see about that. You took the Boston & Maine, did you?—A. Yes, sir.

Q. Now, the statement that the Galena-Signal Oil Company have here shows that that was taken on 100 per cent of previous cost [handing paper to witness]?

Mr. ROSENTHAL. What year? That is hardly a fair question, because the statement here goes to 1897.

Mr. KELLOGG. Well, let him explain it.

Mr. ROSENTHAL. He doesn't know anything about what took place in 1897. I am advised by Mr. Steinbrenner that the historical statement here relates to the Boston & Maine as it now is, and not to the old Boston & Maine.

Q. Well, this contract shows that it was taken in 1897 at 100 per cent of the previous cost. Did you take that contract?—A. No, sir.

Q. How many years ago was the contract you refer to?—A. In about 1884.

Q. Then, from 1884 to 1897 the Galena Company had been lubricating the Boston & Maine, had it?—A. Yes, sir. It may have been 1885 that we took that contract. About 1884 or 1885.

7556 Q. About 1884 or 1885; somewhere along there?—A. Yes, sir.

Q. So from 1884 or 1885 down to 1897 the lubrication of the Boston & Maine was in the hands of the Galena Company, was it?—A. I don't know that that is a fact.

Q. Well, what do you know about it?—A. I know that we lubricated them with Galena oils for several years and finally, after the consolidation, we lost the contract.

Q. Whom did it go to?—A. Swan & Finch.

Q. Swan & Finch were Standard Oil, weren't they?—A. I don't know, sir.

Q. They acted for the Galena-Signal, didn't they?—A. I don't know, sir.

Q. If they did, what year was that?—A. I couldn't tell you.

Q. You don't know? Then the Boston & Maine did lubricate with Galena-Signal oils prior to 1897?—A. Yes, sir.

Q. So this was not the beginning of the business with the Galena-Signal Oil Company—in 1897?—A. No, sir; it wasn't.

Q. Now, what other company do you refer to—your 10 per cent saving?—A. The Mexican Central.

Q. Well, what American lines? The Mexican Central doesn't seem to be here. The Michigan Central?—A. Mexican Central.

Q. That doesn't seem to be here. What other line?—A. The Eastern Railroad.

7557 Q. The Eastern Railroad of what?—A. I think that all the other contracts that we held are now consolidated with the Boston & Maine or the New York, New Haven & Hartford—all the eastern contracts.

Q. Now, the New York, New Haven & Hartford—when did you take that line?

Mr. ROSENTHAL. He didn't say that he took that line.

Mr. KELLOGG. Well, the lines that comprise that line.

Mr. ROSENTHAL. He didn't even say that.

Q. Well, what did you say?—A. I said we sold the Old Colony Railroad Company, not under contract.

Q. That is the only one, is it?—A. That is the only one that is part of the New York, New Haven & Hartford, as I understand it, to-day.

Q. When did you commence that?—A. About 1884.

Q. How long did you keep it?—A. We sold them up to the time of the consolidation of the New York, New Haven & Hartford.

Q. When was that?—A. Ten or 12 years ago—whatever that date was—whenever we stopped selling them.

Q. 1894, 5, or 6?—A. I couldn't give you the date.

Q. Then, as to the Old Colony road, the business of the Galena Company commenced prior to 1894?—A. Yes, sir.

Q. Now, there are no other roads in the East that you sold, outside of the Old Colony and those comprising the Boston & Maine?—A. No other roads.

Q. Any Western roads except the Santa Fe?—A. Yes; the St. Louis and San Francisco as it was then managed.

Q. The St. Louis & San Francisco, how many years did
7558 you commence on that?—A. Somewhere about 1884.

Q. Took the contracts for the Galena-Signal, did you?—A. Yes, sir.

Q. Prior to 1884 had you been selling that road lubricants?—A. I think not.

Q. Any other roads?—A. Atlantic & Pacific.

Q. That is part of the Santa Fe, isn't it?—A. I think it is now.

Q. When did you commence selling that road?—A. About 1884.

Q. For the Galena-Signal?—A. Yes, sir.

Q. What other road?—A. I think that is all. The Mexican Central I have mentioned.

Q. Did you have a written contract of agency with the Galena-Signal Oil Company?—A. No, sir.

Q. Never had one?—A. Never had one.

Q. Or with Thompson & Bedford?—A. No, sir.

7559 C. C. STEINBRENNER, recalled on behalf of the defendants, testified as follows:

Direct examination resumed by Mr. ROSENTHAL:

(Paper marked Defendants' Exhibit 66—3 sheets.)

Q. I show you defendants' Exhibit 66. Please state generally what that is.—A. That is a comparative statement of cost of lubricating freight cars, based upon the tons hauled one mile, for a period of ten years ago as compared with the present date, where we had the contracts at that time, and other roads coming in during that period.

Q. Now, take the first road, namely, the Atchison, Topeka & Santa Fe System, for the purpose of explaining the scheme.—A. The Atchison, Topeka & Santa Fe System of roads were using our oils in the 12 months ended June 30, 1897.

Q. That is 6/30/1897?—A. Yes. They hauled during that 12 months' period 2,062,483,268 tons one mile. It cost the road during that period——

Q. It cost them during that period to haul that many tons one mile for lubrication?—A. For lubrication, $36,411.32. This reduced to per 1,000 tons hauled one mile means 1.76541166c.

Q. That is, 1.76541166 cents was what it cost the Santa Fe to lubricate its freight cars in the hauling of 1,000 tons one mile?—A. Yes, sir. During the 12 months ended June 30, 1906, the system hauled 5,841,420,731 tons one mile, at a total cost of $39,968. This
7560 reduced to cost per 1,000 tons hauled one mile was .68421711¢.

Q. Does the 5,841,420,731 tons represent the total freight tonnage of the Santa Fe System for the 12 months ending June 30, 1906?—A. That represents the total revenue freight tonnage hauled for that period.

Q. That does not include what the road hauled for itself?—A. No, sir.

Q. Now, what was the percentage of decrease in the cost of lubrication on the Santa Fe System, comparing the 12 months' period ending June 30, 1897, with the 12 months' period ending June 30, 1906, so far as the lubrication of freight cars was concerned?—A. That shows a reduction in the last period as compared to the first of 61.24 per cent.

Q. So that it cost the Santa Fe road 61.24 per cent less to lubricate its freight cars in 1906 than it did in 1907?—A. Yes, sir.

Q. Per 1,000 ton miles?—A. Yes, sir.

Q. Now take the Colorado Midland. How much of a percentage of decrease was made there?—A. 63.83 per cent.

Q. Chicago, Burlington & Quincy?—A. Chicago, Burlington & Quincy, 61.79 per cent.

Q. Take the Minneapolis, St. Paul & Sault Ste. Marie—on the second page.—A. The reduction for the year ended June 30, 1906, as compared with the year ended June 30, 1898, is 70.79 per cent.

Q. Minneapolis & St. Louis.—A. The Minneapolis & St. Louis, for the year ended June 30, 1906, as compared with the year ended
7561 June 30, 1897, shows a reduction of 77.39 per cent.

Q. The Northern Pacific?—A. The Northern Pacific for the year ended June 30, 1906, as compared with the year ended June 30, 1896, was 75.96 per cent.

Q. The Oregon Short Line—Mr. Harriman's line?—

Mr. KELLOGG. Now one moment, Mr. Rosenthal. I want to ask him some questions about the figures there. You are putting that in without any proof that it is——

Mr. ROSENTHAL. I will make the proof. I am not through with it yet.

Q. The Oregon Short Line?—A. The Oregon Short Line——

Mr. KELLOGG. I object to the testimony as hearsay; and the witness has no personal knowledge of the fact.

WITNESS. The Oregon Short Line for the year ended June 30, 1907, as compared with the year ended June 30, 1898, showed a reduction of 79.89 per cent.

Q. Now, how many roads are there here all together on this exhibit?—A. 70.

Q. And of the 70 roads, how many roads show an increase and how many show a decrease in the cost of freight lubrication, as shown by this exhibit?—A. Five show an increase. The balance show a decrease.

Q. Where did you get these figures from, Mr. Steinbrenner?—A. The tons hauled one mile were taken from Poor's Manual, and verified by the individual railroad companies.

Q. Verified in what way?—A. We wrote to the railroads, giving them the figures we had ascertained from Poor's Manual,
7562 and asked them to verify them with their own records, and if the figures that we had secured from Poor's Manual were in error to give us the correct figures, which they did; and the correct figures are represented in this statement.

Q. So the figures under the head "Tons hauled one mile" were obtained in the way that you have just described?—A. Yes, sir.

Mr. ROSENTHAL. Now, so far as that is concerned, Mr. Kellogg, subject to Mr. Hunter's right to check them up, do you still stand by your objection that it is hearsay?

Mr. KELLOGG. Oh, no; I don't care anything about it, Mr. Rosenthal.

Mr. ROSENTHAL. Because, if you do, we will have to call the people who have in their possession the original knowledge. Then, I understand, the objection that the testimony is hearsay, that the witness has no original knowledge of these figures, is withdrawn?

Mr. KELLOGG. Yes. I have no objection to that, subject to our right to check it up.

Mr. ROSENTHAL. Certainly.

Q. Now, take the column headed "Actual cost paid by railroad company." Where do you get those figures from?—A. Those figures were taken from our own books, covering the cost as reported to us by the railroad companies, and represent the figures as we would settle with the railroad company under our contracts.

Q. Explain that a little more in detail, will you? Have you any of those reports here?—A. No, sir.

7563 Q. Is it shown on any of these Government exhibits?—A. Wherever the period would correspond with this period, it would show in those statements.

Q. Will you take one of those statements, and show us just how you got at the actual cost paid by the railroad company?—A. Taking the A., T. & S. F. system for the year ended June 30, 1906, the statement in evidence shows that freight car service cost the railroad company $39,968, which corresponded with the figure in the column of "Actual cost paid by railroad company."

Mr. KELLOGG. Let me ask you right there, is that the invoice cost?

WITNESS. That is the guaranteed cost.

Mr. KELLOGG. That is the final settled cost?

WITNESS. Final settled cost.

Mr. KELLOGG. Both of these claims are based on the same thing?

WITNESS. Yes, sir; both made on the same comparison.

Q. Now, all of the other columns—that is, the actual cost per 1,000 tons one mile, the percentage of increase or decrease—are mere computations from the first two columns?—A. Yes, sir.

Mr. ROSENTHAL. I offer in evidence defendants' Exhibit 66.

By Mr. KELLOGG:

Q. Mr. Steinbrenner, who selected these roads?—A. I did.

Q. Who selected the dates?—A. I did.

7564 Q. The tons hauled one mile were got from Poor's Manual?—A. Poor's Manual, verified by the railroad companies.

Q. The dates selected are along about 1897 and 1898 to 1906?—A. Yes, sir.

Q. A period of eight or nine years?—A. Some ten years, and others less than that, depending upon the original contract period.

Q. In the neighborhood of ten years?—A. Yes.

Q. During that ten years the greatest improvement in railroads has been made ever known in the history of railroads, hasn't it?—A. Yes, sir.

Q. They have cut down grades to a very great extent all over the country, haven't they?—A. So far as I know.

Q. Well, that is your general information, Mr. Steinbrenner?—A. Yes.

Q. They have decreased the cost of hauling a ton of freight to a very great extent, haven't they, in all departments?—A. Yes, sir; and lubrication went with it.

Q. No doubt about that.—A. Due to our efforts largely.

Q. Well, we will see about that. They have done it anyhow, haven't they?—A. Yes.

Q. The decrease in the cost of hauling a ton of freight one mile has been accomplished through reduction of grades, heavier equipment, improved methods of operation, concentrating of loads into the full carload, hauling a greater load of freight per dead weight of car, and various other similar methods?—A. Various elements enter into the cost.

7565 Q. And this decrease has been very great in ten years, hasn't it—the decrease in expense of hauling a ton of freight a mile?—A. I don't know what it would cover in other expenses; I know what it covers in lubrication.

Q. You know in a general way, from your knowledge of railroads?—A. There was a reduction; yes, sir.

Q. A very heavy reduction?—A. Railroads are constantly decreasing expenses.

Q. You used to be in the railroad business yourself?—A. Yes, sir.

Q. And you know that the cost of hauling a ton of freight a mile has decreased a great deal in the last ten years?—A. Yes; generally speaking.

Q. So that lubrication is not the only cost that has decreased?—A. No. It is quite a considerable part of it.

Q. Well, in the aggregate, of course, it is a very small percentage, because the cost of lubrication is a very small percentage of the cost of operation?—A. Certainly.

Q. In the aggregate you don't mean that it is a large percentage?—A. Not taking all expenses into consideration.

Q. No—it is a very small percentage.—A. Yes.

Q. Now, the average train load hauled by an engine to-day, on account of the reduction of grade, as compared with ten years ago, is in most of the railroads of the United States a very large increase, isn't it?—A. State that again, please.

Q. The average train load hauled with a locomotive—or with the same power, I will put it—on most of the railroads has

7566 very much increased in the last ten years?—A. Not with the same power. The power has increased.

Q. Yes, but the same power will haul a bigger load on a road with better grades, won't it?—A. Naturally.

Q. So, I say, on most of the railroads in the United States, the grades have been reduced in the last ten years?—A. I don't know "on most of the railroads."

Q. Well, on a great many of them you know?—A. Quite a number of them; yes.

Q. Even the New York Central has reduced its grades in many places, notably out of Albany?—A. I don't know that they had any grades in the last ten years.

Q. Don't you know that they have raised the bridges and depots and yards in Albany, so as to do away with the heavy grade down the hill?—A. No, I don't.

Q. You were not aware of that?—A. No.

Q. Did you ever go out of Albany on a limited train and know that they used to double up all their trains on that hill?—A. No.

Q. You don't know that. Do you know that they have raised their grades through the city of Schenectady?—A. No, I don't; I don't know what they have done.

Q. Well, you know generally that nearly all railroads in the United States have very largely reduced grades in the last ten years?—A. Some have, to my knowledge.

Q. Now I notice you omit the Pennsylvania company from this statement?—A. No; it is there.

7567 Q. Where is it?—A. On the third sheet.

Q. You didn't read that. That shows only a reduction of 25 per cent?—A. That is the Pennsylvania company; that is one division.

Q. Well, the P., C., C. & St. L., only 21 per cent?—A. Yes.

Q. The Charleston & Western Carolina only 9½ per cent?—A. You will notice that was only a three-year period, in comparison.

Q. Well, look at this longer period; the Southern Pacific only 12.86 per cent.—A. That is the Atlantic system.

Q. Well, the Southern Pacific—the other system has an increase of 28 per cent?—A. Yes.

Q. Instead of a decrease. The Vicksburg, Shreveport & Pacific, only 14 per cent (I leave off the fractions).—A. Yes; that shows 14 per cent.

Q. Toledo & Ohio Central, only 5½ per cent?—A. Yes.

Q. Michigan Central, only 1½ per cent?—A. That is only a four-year period. Don't expect very much improvement in that period.

Q. All right, I will leave that out. Take the Rutland Railroad; only 6½ per cent.—A. That is only a two-year period.

Q. 1904, I thought?—A. Yes; 1904 to 1906.

Q. Oh, beg your pardon. Now, take many of these Western lines of road—you have traveled over them more or less, haven't you?—A. Some.

Q. You know the improvements in grades have been very great in nearly all the Western roads?—A. I don't know that they have been "very great." I know that some improvement has been made.

7568 By Mr. ROSENTHAL:

Q. I show you defendant's Exhibit 67. Will you first explain the general scheme of that exhibit?—A. What do you mean by "scheme," Mr. Rosenthal?

Q. Well, it is an exhibit that, generally speaking, shows the percentage of the invoice price paid by the various railroad systems,

is it not?—A. Yes. The Government, in its contention, have figured out the returns to the Galena Company on the basis of invoice prices per gallon. We contend that that is not right. We do not follow.

Q. That is, we contend that that is an incorrect theory?—A. An incorrect theory. But we have made up a statement along those lines to show what the per cent should be following that theory.

Q. That is to say, the Government has proceeded upon the theory that our contract is a contract for the sale of oil merely at gallon prices?—A. Yes, sir.

Q. And, proceeding upon that theory, they have worked out the percentage of invoice prices paid by the various railroad companies?—A. Yes, sir.

Q. Based upon gallon prices?—A. Yes, and the guaranteed rates per 1,000 miles.

Q. Now, for the purpose of showing that they have not even treated us fairly upon that theory, you have prepared this table?—A. Yes, sir.

Mr. KELLOGG. Doesn't it show on its face what it is?

7569 Mr. ROSENTHAL. No, I think not. I think it requires some explanation.

Q. Take, first, the Pennsylvania system. What roads comprise the Pennsylvania system?—A. The Pennsylvania lines east, which cover the roads east of Pittsburg and Erie; the Pennsylvania Company, which is the P., F. W. & C.; and the P., C., C. & St. L., which is usually known as the Panhandle Route west of Pittsburg.

Q. You have grouped those under the head of the Pennsylvania system?—A. Pennsylvania system of lines.

Q. Because, although, as I understand it, you may have separate contracts with the separate companies, yet the system as a whole is dealt with?—A. Yes, sir.

Q. And it is operated as a unit?—A. As a unit.

Q. So, with the Harriman lines. Get down to No. 9. The Harriman lines, as you have grouped them, comprise the Southern Pacific, the San Pedro, Los Angeles and St. L., Southern Pacific, Atlantic systems, the Oregon Short Line, and the Union Pacific?—A. Yes, sir. We had one contract covering all those under one guaranty.

Q. And then, again, I observe you have grouped the Boston & Maine system?—A. Yes, sir.

Q. Which is made up of the Maine Central and the Boston & Maine?—A. Yes, sir.

Q. And so, again, with the New York Central system?—A. Yes, sir.

Q. Which is made up of the Big Four, Michigan Central, the Lake Shore, the New York Central & Hudson River, the Rutland, New York, Chicago & St. Louis?—A. Yes, sir.

Q. The New York Central includes the Boston & Albany,
7570 does it not?—A. Yes.

Q. Now take the New York Central lines there. Under the head of "Value of lubricants consumed," where did you get those

figures from?—A. Those figures are taken from the statements in evidence by the Government.

Q. What do you mean by "Division figures" under that heading?—A. The "Division figures" cover the figures for each of the lines set opposite these figures.

Q. That is, each of the separate companies that goes to make up the particular system?—A. Yes, sir.

Q. Under the second heading, "Value of sales lubricating and signal oils," where did you get those figures from?—A. Those figures are taken from our record of sales for the periods indicated at the head of the sheet.

Q. Those will not correspond, as I understand it, with the figures shown on the statements already put in evidence by the Government?—A. No, sir.

Q. Why not?—A. Because the sales exceed the consumption of oils on the different lines.

Q. What do you mean by that? Explain it, please.—A. The railroad will purchase, in many instances, much more oil than will be consumed in lubricating passenger and freight car service. They may consume it for other purposes of which we have no knowledge.

Q. And for that they pay invoice prices, do they not?—A. Yes, sir.

Q. That is, all of the oil purchased by a railroad company that is not used for railroad lubrication is paid for at in-
7571 voice prices and does not come under the guaranties of your contract.

Q. And how about signal oil?—A. Signal oil is paid for at invoice prices, absolutely.

Q. So that these Government exhibits which they have already put in evidence, which it is alleged show the percentage of invoice price, based upon consumption, do not, as a matter of fact, accurately show that?—A. That is right.

Q. Because they only tell part of the story?—A. Tell part of it.

Q. That is to say, they only cover the oil which is actually used for lubricating locomotives, passenger, and freight cars?—A. Yes, sir.

Q. And do not take into consideration either signal oil or the lubricating oil that is used by the railroad company for other purposes?—A. Yes, sir.

Q. Now, in this Exhibit 66, where you have here, "Value of sales of lubricating and signal oils," you have added in those two elements, have you not?—A. Yes.

Q. And that is the reason that the figures in that column will not correspond with the figures shown in the Government exhibits?—A. Exactly.

Q. Because they have omitted those two elements. Now take the next column, "Excess cost refunded," what does that mean?—A. That is the excess cost of oils consumed in locomotives, passenger and freight cars as compared with the guaranteed rates per 1,000 miles,

and is the amount that is refunded to the railroad in order to make good our guaranties.

7572 Q. Where did you get those figures from?—A. Those figures are taken from the exhibits in evidence.

Q. And those represent the amounts that you actually refunded the railroad companies?—A. Yes, sir.

Q. What the Government did in their exhibits was to ascertain the percentage relationship between that figure and the total cost of the oil used for lubricating locomotives, passenger and freight cars?—A. Yes, sir.

Q. What you do here is to get the percentage relation between that figure and the total cost of all the lubricating oils sold by you and signal oils sold by you to the railroad company?—A. Yes.

Q. Is that right?—A. That is right.

Q. And that, of course, works out a different percentage than the Government secured in its exhibits?—A. Yes, sir.

Q. And takes into consideration all of the elements that enter into the purchase and sale of the lubricants?—A. Yes.

Q. And then, in addition to that, as I think you have already explained, you have grouped these roads as systems instead of treating them as individual roads?—A. We have followed the method employed by the Government in its contention.

Q. Under the head of "Per cent of invoice price based on consumption" you get certain figures?—A. Yes.

Q. In the case of the Pennsylvania system, for example, you get an average for the system of 51 per cent. What does that mean?—A. That means the same percentage that is worked out on the Government exhibits and shows the percentage based upon con-

7573 sumption in locomotives, passenger and freight cars, and not based upon the sale.

Q. So that the 51 per cent there in the case of the Pennsylvania is the percentage based upon consumption, as shown by the exhibits which the Government has put in?—A. Yes, sir.

Q. Taking a percentage, however, of invoice price paid based upon the sales actually made in the case of the Pennsylvania you get 53 per cent?—A. 53 per cent.

Q. And then, in the case of the Harriman lines, for example, it is a difference of from 71 to 79 per cent, is it not?—A. Yes, sir.

Q. And so along throughout the entire exhibit?—A. Yes, sir.

Q. What do these red lines mean that extend clear across the page, there being five of them on the first page?—A. The red lines indicate the groups of roads within the 90 per cent, 80 per cent, or 70 per cent, and so on down; we followed the Government scheme in that respect.

Q. That is, you have taken, first, the Pennsylvania?—A. Yes, sir.

Q. Which is in the 50 per cent group?—A. Yes, sir.

Q. You first take the Pennsylvania, which pays 53 per cent of the invoice price based upon sales?—A. Yes. And which the Government has laid so much stress upon.

Mr. KELLOGG. Now, if you will please testify to facts.

WITNESS. I am trying to make this plain.

Mr. KELLOGG. Sure you are.

7574 Mr. ROSENTHAL. Now, don't you and Mr. Kellogg get into a scrap here.

Mr. KELLOGG. I object to the witness arguing this case. Stick to the facts, it will do just as well.

WITNESS. I am trying to make it plain to you, Mr. Kellogg.

Q. Then, having taken the Pennsylvania and put it in a group by itself, you take all of the other roads that pay between 50 and 70 per cent of the invoice price and group them between the next two red lines?—A. Yes, sir.

Q. And then after that you take all of the roads which pay between 70 and 80 per cent and group them between two red lines?—A. Exactly.

Q. And then include 80 and 90, and 90 and 100?—A. Yes, sir.

Q. And then 100 per cent?—A. And then 100 per cent.

Q. How many roads are there all together?—A. 70.

Q. The railroads that are upon this exhibit, defendants' Exhibit 67, include all of the railroads that appear upon the Government exhibits?—A. Yes, sir.

Q. And when you say 70 roads you count a system as one?—A. Yes.

Q. Now, Mr. Steinbrenner, aside from the Pennsylvania road, how many of these 70 roads are there that pay from 50 to 70 per cent of the invoice price?—A. Four. And small roads at that.

Q. Name them.—A. The Central of Georgia; the Georgia Railroad; Toledo, Peoria & Western; Buffalo, Rochester & Pittsburg.

Q. What is the total sale of oils to those four roads as shown by this exhibit?—A. $89,812 per year.

7575 Q. The year that you have selected here is the year selected by the Government, is it not?—A. Yes, sir; 1904–5.

Q. So that all of the oils that you sold to all of these railroads during that year amounted to only $89,812?—A. Yes, sir.

Q. What was the total sale of oils to all of the railroads made by the Galena-Signal for that year, included in this sheet—to all of the railroads included in this sheet?—A. $6,039,741.

Q. So that the roads, excluding the Pennsylvania, that paid from 50 to 70 per cent of the invoice price, represent only about 1½ per cent of the total sales made by the Galena-Signal Company for that year?—A. About that.

Q. As shown in this sheet?—A. Yes, sir.

Q. Of course, when I said total sales I am always speaking about the roads that are shown in this sheet.—A. Yes, sir.

Q. And only that?—A. Yes, sir.

Q. Those roads being the ones selected by the Government. Now, what was the total sales made by the Galena for that year to the group of roads that paid from 70 to 80 per cent of the invoice price?—A. $556,553.

Q. And from 80 to 90?—A. From 80 to 90, the sales to those lines amounted to $1,498,852.

Q. And from 90 to 100?—A. $1,751,386.

Q. And the total sales made to the roads that paid 100 per cent of the invoice price amounted to what?—A. $1,344,525.

7576 Q. So that, in round numbers, 50 per cent of the roads paid over 90 per cent of the invoice prices?—A, Yes.

Q. And I mean by that, of course, 50 per cent in quantity of sales.—A. Yes.

Q. Not 50 per cent of the number of roads, because, considering them simply from the point of number of roads, it is much more than 50 per cent.—A. Yes, sir.

Q. And then about 25 per cent in quantity paid between 80 and 90 per cent—in round numbers, a million and a half?—A. Yes.

Q. And about 15 per cent paid between 70 and 80?—A. Yes.

Mr. ROSENTHAL. I offer Defendants' Exhibit 67 in evidence.

By Mr. KELLOGG:

Q. Now, Mr. Steinbrenner, you have included in this statement the signal oils and all oils not used in lubricating cars and engines, haven't you?—A. Yes, sir.

Q. Now, in your statements which you gave us you didn't include those, did you?—A. You didn't ask for it.

Q. We didn't ask you not to include it, did we?—A. No; I made it up on the basis of the consumption which you asked for.

Q. We left you to make it up on any basis you saw fit, didn't we? Will you look at the statement we requested?—A. The statement you requested?

Mr. ROSENTHAL. You made a specific request.

7577 Q. Did we ask you to exclude the signal oil?—A. You asked for lubricating oils.

Q. Certainly.—A. And signal oil is not a lubricating oil.

Q. Certainly. Then, you have in this statement, in the cost of lubricating railroads, something that is not lubricating oil at all, haven't you?—A. We have made the basis of the sales to railroads.

Q. Now, oil is not the only thing you sell railroads, is it?—A. Yes.

Q. Don't you sell waste?—A. No, sir.

Q. Isn't there some company connected with the Galena-Signal Oil Company that sells waste?—A. No, sir.

Q. Are you an officer of the Franklin Manufacturing Company?—A. I act as their auditor.

Q. The Franklin Manufacturing Company is owned by the same parties that own the Galena-Signal, isn't it?—A. No.

Q. Isn't Mr. Miller a stockholder?—A. He is a stockholder.

Q. Aren't you a stockholder?—A. No, sir.

Q. You are an officer?—A. I am an employee of that company.

Q. Is Mr. Joseph Sibley interested in the Franklin Manufacturing Company?—A. Not to my knowledge.

Q. Mr. Miller is?—A. Slightly.

Q. Who else are your stockholders?—A. The son of General Miller.

Q. The son of General Miller is a stockholder?—A. And the general manager of the company. But that is an absolutely separate institution; it does its own business.

7578 Q. Does the Standard own any stock in it?—A. No, sir.

Mr. ROSENTHAL. We are not in that line.

Mr. KELLOGG. I am glad to find there is something that it doesn't own.

Mr. ROSENTHAL. Not guilty as to that.

Q. Now, you produced your contracts and a statement of the contracts for lubricating railroads, didn't you?—A. Yes.

Q. At our request?—A. Yes.

Q. And you produced your settlement sheets for the cost of lubricating railroads?—A. Yes, sir.

Q. And signal oil was no part of that cost and no part of the oil used in lubricating railroads?—A. No, sir.

Mr. ROSENTHAL. It is a part of the contract, isn't it?

WITNESS. It is a part of the contract.

Q. In every contract? In nearly every one?—A. I don't think there is an exception.

Q. There are a good many exceptions, aren't there?—A. Well, I——

Q. How about the Pennsylvania?—A. The Pennsylvania doesn't specify the use of signal oil.

Q. Yet, you have included it in the Pennsylvania statements here, haven't you?—A. No, sir.

Q. It so states on its face, "Value of oils, lubricating and signal oils, Pennsylvania Company."—A. No; that may represent altogether lubricating oils.

7579 Q. Well, it may. Does it or does it not?—A. It does.

Q. Is all this signal oil put in at the invoice prices?—A. Yes, sir.

Q. What price is that?—A. 36 cents.

Q. How long has it been 36 cents?—A. As long as I know.

Q. 30 years?—A. As long as I have been with the company.

Q. As long as you have been with the company the price has been the same. So that has never been reduced?—A. No, sir.

Q. Don't you pay the Pennsylvania Company a rebate of 4 cents a gallon on the lines west of Pittsburg?—A. I don't know.

Q. Well, aren't you auditor of this department?—A. Yes. I have never made any accounting of that at all.

Q. Isn't the account of the signal oil sold the Pennsylvania in your department?—A. Yes. We bill it at 36 cents a gallon.

Q. Does the Signal Oil Company pay a rebate to the Pennsylvania Company of 4 cents a gallon?—A. I don't know of any.

Q. You don't know of any?—A. No, sir.

Q. Well, we will examine your books and find out. Didn't General Miller make that arrangement, and doesn't he pay it in a secret way?—A. I don't know anything about it.

Q. Do you keep a statement—a book—in your office showing expenditures?—A. No, sir.

Q. None of the expenditures of the Galena-Signal Oil Company shown in your office?—A. No, sir.

7580 Q. At all?—A. No, sir.

Q. What office are they shown in?—A. I presume in the comptroller's office.

Q. What is the comptroller's name?—A. Mr. D. D. Mallory.

Q. Who has charge of the accounting department of the Galena-Signal Oil Company?—A. I have charge of the railway department.

Q. Who has charge of the other accounting departments?—A. D. D. Mallory.

Q. At Franklin, Pennsylvania?—A. Yes, sir.

Q. Do you have charge of the settlements for signal oil?—A. Yes.

Q. What railroads have you paid rebates to?—A. None that I know of.

Q. None?—A. No, sir.

Q. You won't swear that they don't pay them, will you?—A. I don't know anything about it, excepting I know that we get our full invoice price. That is my knowledge.

Q. Now, other oils not used for lubricating of railroads are included in this statement, too, are they?—A. What is that?

Q. Other oils not used for the lubrication of railroad trains are included in this statement?—A. That represents all of our sales to the railroads, no matter what kind of oil it is.

Q. Or what it is used for?—A. Yes, sir.

Q. Now, outside of your lubrication of engines and cars, you make no discount to the railroads, do you?—A. No, sir.

7581 Q. You have the same invoice prices to-day that you have had for forty years?—A. Yes.

Q. And the mileage guaranty only applies to the engines and cars?—A. Yes, sir.

Q. Then if you are making up a statement of the lubrication of engines and cars, which has been the only subject of inquiry——

Mr. ROSENTHAL. Oh, no.

Q. On this basis, why do you include those other items?

Mr. ROSENTHAL. Oh, no; it hasn't been the only subject of inquiry.

A. To show that there are other considerations in making the contract.

Q. Now, your refunds all relate exclusively to the oil used in lubricating cars and engines?—A. Yes, sir.

Q. You say that the four small roads, the Central of Georgia and other lines in that group, paid a total of only $89,812?—A. Yes, sir.

Q. Why didn't you mention the Pennsylvania in connection with that?—A. I mentioned it also.

Q. Well, you didn't in your testimony.

Mr. ROSENTHAL. Oh, yes.

Q. You were so anxious to be fair.—A. The question wasn't put to me in that way.

Mr. ROSENTHAL. My question specifically excluded the Pennsylvania.

Q. Now, the Pennsylvania Company was $798,613, wasn't it?—A. Yes.

Q. And according to the division figures, based on your sys-
7582 tem of figuring, it included signal oil, although that is not in the contract. They only paid 53 per cent of the invoice price?—A. Yes, sir.

Q. On all lines?—A. On all lines combined.

Q. And that $798,000 is about what percentage of the total of all the railroads that you have got here in the United States?

Mr. ROSENTHAL. A little over 10 per cent of the roads shown on that list.

A. 11 per cent, perhaps.

Q. It is more than 11 per cent, isn't it?—A. I think not.

Q. Will you just figure it, please?—A. (After figuring.) About 12 per cent.

Q. Isn't it exactly 13.2 per cent?—A. 13.2; that is, of these roads.

Q. Now, then, on 13 per cent of the railroads of the United States you are losing money?—A. Not of the railroads of the United States.

Q. Well, the railroads that you have got here?—A. This is only a part of it.

Q. On 13 per cent of the railroads you have given here you are losing money?—A. Not on 13 per cent of the railroads.

Q. That you have given in this list?—A. Not 13 per cent of this list.

Q. 13 per cent of the total cost?—A. 13 per cent of the sales to these roads.

Q. 13 per cent of the sales in dollars to all of the roads you
7583 have given in this list, you are losing money on?—A. Yes.

Q. You are losing money on these four other roads, too, the Central of Georgia, the Georgia Railroad, the Toledo, Peoria & Western, and the Buffalo, Rochester & Pittsburg, are you?—A. Yes, sir.

Q. How many more are you losing money on?—A. Losing some on the others.

Q. Give us some of them.—A. We are losing on the Boston & Maine and Maine Central systems.

Q. Anything else?—A. We are losing money on the Southern Indiana, the Chicago Great Western, the Harriman lines.

Mr. ROSENTHAL. You are not losing on all the Harriman lines?

WITNESS. I am taking them now as a group.

Q. You mean as you have given them in this group?—A. Yes.

Q. The whole group you are losing money on?—A. Yes.

Q. Any others?—A. No; I think not.

Q. Are you still losing money on the Nashville, Chattanooga & St. Louis?—A. No; I think not.

Q. Now, that is nearly 23 per cent, or about 23 per cent of your total sales to all the railroads mentioned here, isn't it?—A. I haven't figured it.

Q. Well, you can run your eye over it here and see.—A. I will assume that your figure is right.

Q. In spite of that, your company has made $2,700,000 net
7584 last year, hasn't it?—A. This is a small part of our business.

Q. How much did you make this year?—A. I don't know.

Q. You don't know anything about it?—A. No, sir.

Q. You say this includes all the railroads for which you gave statements to the Government?—A. I think it does.

Q. There are 70 roads here, do you say?—A. Yes, sir.

Q. You gave us statements for 104, didn't you?—A. No.

Mr. ROSENTHAL. 70 systems here.

WITNESS. 70 systems.

Q. 104 separate corporations in the statement you furnished us. They may be all included in this?—A. I think so.

Q. Does this include the great bulk of the railway mileage of the United States?—A. I would think it did.

Q. Now, you have grouped a lot of lines here called the Harriman lines. Why do you do that?—A. We have one contract covering all those lines, under one guaranty.

Q. When did you consolidate those lines into one guaranty?—A. March, 1904.

Q. Prior to that you had separate contracts?—A. We had separate contracts with the different lines.

Q. You put the San Pedro, Los Angeles & Salt Lake Railway in the Harriman system?—A. Yes, sir.

Q. Mr. Harriman insists that it is not.—A. It is a Harriman line, and the same guaranties were given to that line because of its being a part of that system.

Q. And that is included in the contract, is it?—A. No, sir; there is a separate contract covering that line.

7585 Q. I thought you said you had them all in one contract?—A. Excepting that line.

Q. Except that line?—A. Yes.

Q. But you consider that a part of the Union Pacific system?—A. Yes.

Mr. ROSENTHAL. Use him as a witness.

Mr. KELLOGG. I think we will call you as a witness.

Mr. ROSENTHAL. You can just keep him testifying here as a witness for the Government in one way or another for some years to come.

Q. The settlements with these various systems are separate, are they not—the Southern Pacific system?—A. Yes.

Q. A different guaranty for that?—A. No, sir; the guaranties are all alike.

Q. The Southern Pacific, Atlantic system, and all these lines are included in one settlement, are they?—A. No; not in one settlement. We make separate settlement with each road.

Q. You make separate settlements with the Pennsylvania different lines, don't you?—A. Yes, sir.

Q. Separate contracts?—A. Separate contracts.

Q. Separate contracts on the Maine Central and Boston & Maine?—A. We followed your idea in grouping these roads. You grouped the Pennsylvania, and we followed it out in the other lines.

Q. Did I group the Central of Georgia with the Buffalo, Rochester & Pittsburg?—A. No.

Mr. ROSENTHAL. Neither has he.

WITNESS. Neither have I.

7586 Q. Now, these New York Central lines are separate contracts, aren't they?—A. Yes, sir.

Q. And separate settlements?—A. Separate settlements.

Q. The Queen & Crescent lines are separate contracts, aren't they?—A. The N. O. & N. E. and the A. & V. are covered in one contract.

Q. Those lines which are separately stated here under the Queen & Crescent lines are separate contracts and separate settlements, are they?—A. I think with the exception of the C., N. O. & T. P. and the Alabama & Great Southern, I believe are covered by one contract.

Q. The Erie's system—their lines are separate contracts?—A. The Erie and Erie & Wyoming Valley are one contract, and the New York, Susquehanna & Western is a contract.

Mr. ROSENTHAL. You have made a general objection here, Mr. Kellogg——

Mr. KELLOGG. I will state, Mr. Rosenthal, as to Exhibit 62 that I am willing that should go in, with all the statements on it, as Mr. Steinbrenner's testimony. Of course I wouldn't want to do this if you are going over each one of them, taking just as much time. I do that to save time.

Mr. ROSENTHAL. Oh, no, certainly. And so the general objection that you made when we started upon this line of testimony, to the effect that Mr. Steinbrenner was testifying to hearsay matter, matters which were not within his personal knowledge, is withdrawn.

7587 Otherwise, of course, I shall have to proceed as I have been, and go along and have him point out those roads in connection with which he has not personal knowledge and then supplement his evidence, as I did by Mr. Speare this morning, for example, with the testimony of a witness that has original knowledge. We will give you an opportunity to verify any statement on this exhibit that you may question in any way at all.

Mr. KELLOGG. I am not going to require you to show by original testimony any information which Mr. Steinbrenner has shown, by his cross-examination or direct examination, he has obtained from documents, books, or other sources of information. I expect to accept that as primary testimony, the same as has been done heretofore. Of course we are entitled to all the effect that such testimony has in the case, the sources of information. In some cases they are more reliable than others, acording to Mr. Steinbrenner's own testimony. In other words, Mr. Steinbrenner himself testifies that, by examination

of certain documents, he knows that the company had a contract previous to that time. Now, I have nowhere objected to his stating that at all in all this testimony.

Mr. ROSENTHAL. I thought there was a general objection made by you that was broad enough to cover such testimony as that.

Mr. KELLOGG. I don't think so.

Mr. ROSENTHAL. For example, here is one, on page 7347: "I object to testimony relating to something that you don't know any-
7588 thing about." But, at all events, wherever such objection appears it may be qualified in the way that you have indicated here now.

Mr. KELLOGG. In relation to this statement?

Mr. ROSENTHAL. Yes, sir.

Mr. KELLOGG. Yes, sir.

Mr. ROSENTHAL. I think that is satisfactory to the defense, and, with that understanding I offer defendants' Exhibit 62 in evidence.

Mr. KELLOGG. Of course, Mr. Rosenthal, in further examination of this, if I want to ask Mr. Steinbrenner or any other witness about points in here, I may do so?

Mr. ROSENTHAL. Certainly.

Mr. KELLOGG. I just do that to expedite the matter.

Mr. ROSENTHAL. That will save us, I should say, three or four days; two or three days, anyway.

By Mr. KELLOGG:

Q. Now, Mr. Steinbrenner, so that we may understand this, these various notes on here, some of them, are made from the best information you can get from examining books, contracts, and statements in the office that precede the date of your employment?—A. Yes, sir.

Q. Some of them?—A. Some of them; yes.

By Mr. ROSENTHAL:

Q. As to all those contracts made since you have come there, you have personal knowledge?—A. Yes, sir.

Mr. KELLOGG. I so understood him to testify.

Q. And the statements here in regard to those contracts are
7589 based upon your personal knowledge?—A. Yes; and some even prior to my connection with the company, because I had to make settlements under previous contracts after I became connected with the company.

By Mr. KELLOGG:

Q. That would be for a year or so?—A. Possibly two years prior.

Q. The results of these computations here as to increases or decreases in guaranties and costs are based on the exhibits already in evidence?—A. Yes, sir.

Q. A mere matter of computation.

(A recess was here taken until 2 o'clock p. m., at which time the witness was recalled.)

By Mr. ROSENTHAL:

(Paper marked "Defendants' Exhibit 68.")

Q. I show you defendants' Exhibit 68. Will you please state what that is?—A. This is a statement showing miles made per pint of valve oil on locomotives on roads, statements for which are in evidence, covering the year included in the 1904–5 period.

Q. Under the head of "Pennsylvania lines east and west, Pennsylvania Company," you have "Miles made per pint of valve oil, 33." What does that mean?—A. That shows that the Pennsylvania company (which is the P. F. W. & C. division) makes 33 miles to each pint of valve oil consumed.

Q. P. C. C. & St. L. makes 35?—A. 35.

Q. Whereas the Chicago, St. Paul, Minneapolis & Omaha makes 104?—A. Yes, sir.

7590 Q. And the Atlantic Coast Line 104?—A. 104.

Q. And so on down the list?—A. Yes, sir.

Q. From what source did you obtain these figures?—A. This information was taken from the Government statements, statements furnished the Government.

Mr. ROSENTHAL. I offer defendants' Exhibit 68 in evidence.

By Mr. KELLOGG:

Q. These are simply computations from documents already in evidence, are they?—A. Yes, sir.

By Mr. ROSENTHAL:

Q. And accurately made?—A. Yes, sir.

Q. I show you defendants' Exhibit 69. Please state what that is.—A. This is a statement showing miles made per pint of engine oil and other lubricants used on locomotives for the roads for which statements have been furnished the Government, included in the 1904–1905 period.

Q. And the scheme of this statement is precisely the same as Exhibit 68?—A. Yes, sir.

Q. Showing the number of miles per pint of engine oil and other lubricants used on locomotives?—A. Yes, sir.

Q. Made by the respective roads?—A. Yes.

Q. And the sources from which you obtained these figures are the Government exhibits?—A. Yes, sir.

Mr. ROSENTHAL. I offer in evidence defendants' Exhibit 69.

By Mr. KELLOGG:

Q. Does this include engine and car oil used on engines?—A. This includes all of the oils other than valve oil.

Q. Used on the engines?—A. Yes, sir.

7591 Q. Some engines use car oil and some use engine oil?—A. Yes, and some both. Most of them use both.

Q. Some of them use grease, don't they?—A. Yes; that is for the lubrication——

Q. Is grease in here also?—A. Yes, sir.

Q. What is the equivalent between grease and oil in measurement?—A. We reckon 8 pounds of grease to a gallon of oil or a pound per pint.

Q. A pound of grease costs about three times as much as a pint of oil?—A. Grease is sold at either 7½ cents a pound or 9½ cents a pound, as against oil at 20 cents a gallon or 30 cents a gallon.

Q. Then, a fair computation as to the cost would be about 2½ or 3 pints to a pound, wouldn't it?—A. I can't figure it that way. Figure it at the rate of a pound per pint.

Q. Why do you figure a pound per pint?—A. Because that is the weight; the oil weighs about that and so does the grease.

Q. I know, but a pound of grease costs 2½ or 3 times as much as a pint of engine oil?—A. Yes.

Q. Will a pound of grease go further in lubricating than a pint of oil?—A. It should.

Q. How much further?—A. Some get more out of it and others less.

Q. It goes a good deal further than a pint of oil, doesn't it?—A. It ought to.

7592 Q. You have used a pound of grease as the equivalent of a pint of oil in the calculations made here as to the engine miles?—A. Yes, sir.

Q. And you haven't separated those engines using grease from those using oil?—A. No, sir; we wouldn't in making this calculation.

Q. Wait a moment. Some engines use grease and some engines use oil.—A. Grease is a very strong part of the engine lubrication. Grease is used very little in lubrication.

Q. What roads use it now?—A. The New York Central, the Pennsylvania, the Big Four. Quite a number are using some grease. It is only used on some locomotives.

Q. A good many roads throughout the country are using it, aren't they?—A. More or less of it, but considerably less as compared with the oil.

Q. You haven't distinguished in this statement between those using grease and those using oils?—A. We wouldn't in making up this statement.

Mr. ROSENTHAL. Why not?

WITNESS. For the reason that we want to show here the amount of service goten out of the different classes of oil. We consider all oil outside of valve oil as engine lubricant. It may be used on the tenders; it may be used on the driving axle; it may be used on the reciprocating parts of the engine, while valve oil is supposed to be used only for the lubrication of valves and cylinders.

7593 Q. If one road used grease on its engines and another used oil, the one using grease would run farther on a pound than the one using oil would on a pint, wouldn't it?—A. I don't think the grease would be of sufficient quantity to affect the general average of lubricants.

Q. A pound of grease will run about three times as far as a pint of oil, will it?—A. Yes; but the quantity is so small as compared to the quantity of oil that it would not affect the average.

By Mr. ROSENTHAL:

Q. They don't use grease on the entire engine, do they?—A. No, sir.

Q. For what parts?—A. Just for the driving box, and some roads use it for the rods.

Q. So you couldn't run an engine with grease alone, in any event?—A. No, sir; you couldn't separate it in making up that calculation.

By Mr. KELLOGG:

Q. Some roads use engine oil and some use car oil on their engines, don't they?—A. Yes; most of them use both.

Q. The price of car oil is 18 cents and the price of engine oil is 28 cents?—A. Yes.

By Mr. ROSENTHAL:

Q. I want to call your attention again to defendants' Exhibit 67. You were asked this morning to designate certain roads that you were doing buiness with at a loss. Have you since the adjournment this noon examined the balance sheets of the Galena Company?—A. Yes, sir.

7594 Q. With a view to determining the gross profits?—A. Yes, sir.

Q. The balance sheets in evidence I mean.—A. The balance sheets in evidence; yes.

Q. And the average gross profit for the period covered by the balance sheets in evidence was about 25 per cent, wasn't it?—A. About 25 per cent.

Mr. KELLOGG. 25 per cent of what?

Mr. ROSENTHAL. Profit.

Mr. KELLOGG. 25 per cent of gross sales.

Q. So that your gross profits run about 25 per cent?—A. Yes, sir.

Q. Using that as the percentage basis, and again examining defendants' Exhibit 67, what roads do you find you were doing business with at a loss, upon the assumption that your gross profits are 25 per cent?—A. The Pennsylvania lines, the Central of Georgia, the Georgia Railroad, the Toledo, Peoria & Western, and the Buffalo, Rochester & Pittsburg.

Q. On the Boston & Maine you break just about even?—A. About even.

Q. The business done with the Harriman lines is done at a profit, is it not?—A. Yes, sir.

Q. So, outside of the Pennsylvania lines, there are only those four small lines whose aggregate business amounts to eighty-nine thousand and some odd hundred dollars a year?—A. Yes, sir.

Q. You don't pretend to know, do you, Mr. Steinbrenner, what the cost of the lubricant is to the Galena Company?—A. No, sir.

7595 Q. So that your testimony concerning the matter of profit or loss is based entirely upon what you derive from these exhibits that are in evidence?—A. Yes, sir.

Q. Do you know how the oil is made, what ingredients enter into it?—A. No, sir.

Q. Is the process kept away from you?—A. That is a secret process and we are not allowed to know what ingredients enter into the composition, what proportion, or——

Q. Or what they cost?—A. Or what they cost. That is a matter entirely in the manufacturing department, and in all my fifteen years' connection with the Galena Company, having visited the works possibly a dozen times in that period, I have never been allowed to enter the compounding portion of that plant.

Q. Who is in charge of that?—A. The general superintendent, Mr. George C. Miller.

Q. Is he a son of General Miller, the president of the company?—He is a nephew of the president.

Q. Do you know whether other persons are excluded there?—A. I know that they are not allowed to go through that portion of the plant where the compounding is done; no one. That is an absolute secret.

Q. Now, the total volume of railroad lubricating business done by the Galena Company, as shown by defendants' Exhibit 67, was for the year 1904–5 was $6,039,741. What was the total volume of
7596 business done by the company that same year?—A. That statement covers the period contained within 1904–5, and the balance sheet for the six months ended December 31, 1904, shows total sales of $4,331,982. Assuming that the other six months would be equivalent, that would be $8,663,000, in round numbers.

Q. Have you the other balance sheet there?—A. For the year, 12 months ended December 31, 1906, the total sales amount to $9,998,304.

Q. What other lines of business is the Galena in besides the sale of railroad lubrication?—A. The selling of signal oil, the selling of lubricants, and railway safety oil to trolley lines in this country, selling lubricating oils in Canada, South America, Europe, Cuba, and the West Indies.

Q. That is to say, this $6,039,741 of lubrication sold to the railroads named on defendants' Exhibit 67, then, only represents part of the total business done by the Galena-Signal Company?—A. Yes, sir.

Q. When Mr. Cowper, the officer of the Danville & Western Railway, was on the stand he testified that he didn't know who supplied oils to the Danville & Western prior to June 1, 1900, at which time the Galena Company began the lubrication of that road. Do you know who, as a matter of fact, sold the Danville & Western prior to that time?—A. I do not know who sold them. I do know that we did not sell them any of our oils.

Q. That is, that the Galena-Signal Oil Company did not sell them?—A. Yes, sir.

7597 Q. When Mr. Skinner, of the Sciota Valley Traction Company, was on the stand he testified that car oil which was purchased from the Galena Company by his company was invoiced at 20 cents per gallon. What kind of oil was that?—A. That was electric car oil.

Q. And was 20 cents the regular price for electric car oil, at which it is universally sold?—A. Yes, sir.

Q. Mr. Speare testified this morning that his firm (Speare, Gregory & Company) made the first contract with the Boston & Maine in 1884, or thereabouts. Your historical statement shows the first contract that you had any knowledge of as having been made in 1897. Was the Boston & Maine, as shown on your historical statement here, the same Boston & Maine that existed in 1884?—A. No, sir.

Q. In what way?—A. They had acquired other lines, and there was quite an interval prior to the 1897 contract that I show there as being the first one that they do not appear upon our books as receiving any of our oils as the Boston & Maine road.

Q. What do you mean by "quite an interval?"—A. Well, for several years; at least up to the time I began service for the Galena Company.

Q. That is, from 1892 or 1893 up to 1897 at least——A. At least.

Q. The Boston & Maine was not getting Galena oils?—A. Galena oils; yes, sir.

Q. Under a contract or otherwise?—A. Or otherwise.

Q. From the Galena-Signal Company?—A. Yes, sir.

7598 By Mr. KELLOGG:

Q. Your sales were larger in 1906 than they were in 1905, were they not?—A. Apparently.

Q. Take 1906—there is where we have a full year. Your gross sales, in round numbers, were $9,998,000?—A. Yes, sir.

Q. At the invoice prices?—A. Yes, sir.

Q. From that, of course, you have to deduct all sums paid back to the railroads under these guaranties?

Mr. ROSENTHAL. I think you are mistaken about that.

A. That is the total sales.

Q. That is the invoice price?—A. Yes. The excesses refunded appear in the item of expense.

Q. Now, excess cost of lubrication is $1,088,618.11, isn't it?—A. Yes. That may not, however, apply to this one year. There may have been some excesses accumulated from other years.

Q. Well, it would average up one year with another about that?—A. No.

Q. About the same percentage?—A. No; I think not.

Q. Now wait a minute. Isn't it a fact that that is actually what they paid back on the settlements of that year?—A. That may have applied on settlements occurring prior to that year.

Q. No, sir; I asked you if that is not the actual sum paid back to the railroads under the guaranty for that particular year.—A. Not under the guaranties for that particular year; no.

Q. I mean the settlements as made for that year.—A. It may
7599 have been for settlements passed for payment during that year but it may have applied on previous years.

Q. Then your actual gross income would be $9,998,304.79 less $1,088,618.11?—A. What is that?

Q. Your actual income——

Mr. ROSENTHAL. There isn't much use quibbling on terms here. That sheet shows for itself just what it is.

Q. Will you answer the question?

Mr. ROSENTHAL. There can't be any question about that, Mr. Kellogg, from the statement itself, can there?

Mr. KELLOGG. Well, he denies it.

Mr. ROSENTHAL. No; he doesn't.

WITNESS. I don't deny it.

Mr. ROSENTHAL. The actual net income is the gross amount less the amount paid back to the railroad company.

Mr. KELLOGG. Oh, that is not an explanation of operations. It is not an operating expense.

Mr. ROSENTHAL. It doesn't make any difference what you call it; the actual net business of the company is the gross amount less the amount of the refund to the railroad company.

Mr. KELLOGG. No; the net income is less the operating expenses.

Q. Can you answer that question?—A. I haven't heard it yet.

(The question was read.)

WITNESS. I can't answer that question the way it is put.

Q. Your refunds, the sums that you refunded to the railroads, were not operating expenses?—A. We consider it so.

7600 Q. You swear that that is an operating expense of doing business?—A. We treat it so.

Q. You charge it in your expenses?—A. Yes, sir.

Q. But, as a matter of fact, it is part of the gross sales refunded to the railroads under your guaranty, isn't it?—A. No; we treat it as an expense.

Q. Does that make it so because you treat it so?—A. It does so far as we are concerned.

Q. What is an operating expense, ordinarily?—A. It depends on how you want to consider it.

Q. It is a mere matter of how you consider it, is it?—A. Yes, sir.

Q. So, if you consider the whole nine millions operating expenses, that would settle it, would it?—A. Yes, if we paid it out for expenses.

Q. $1,088,618.11 is what you actually refunded to the railroads under your guaranties, isn't it?—A. Actually paid back during that year.

Q. Under the guaranties?—A. Under the guaranties, yes.

Q. Well, then, why didn't you answer it?—A. I said so in the first place.

Q. Taking that out of the nine million would leave $8,909,686, wouldn't it?—A. Yes; that would leave that amount.

Q. Which you actually received as a gross income?—A. No, sir; we received $9,998,304.79. That is the amount we received.

Q. On your Exhibit 67, the total gross income of $6,039,741
7601 is the sum you received after deducting the refunds to the railroads, isn't it?—A. No, sir; that represents the sales to those roads.

Q. That is, the total sales?—A. Yes, sir.

Q. Those are not all the roads you had under contract?—A. No; that simply represents those roads in that statement.

Q. So, out of seventy of the roads in the United States, only, your gross sales were a little over six milion?

Mr. ROSENTHAL. Oh, no, no; out of seventy railroad systems, the same being the roads concerning which the Government has made inquiry.

Q. The Government has a list of every railroad that you sell to, which you furnished us.—A. I presume so.

Q. This does not include all.—A. That includes all of the roads of which you have statements from us.

Q. No, it doesn't. This doesn't include all the railroads you sell lubricants to?—A. No, sir.

Q. Very well. So that your gross sales to these seventy railroads——A. Seventy systems.

Q. Seventy systems, amount to more than two-thirds of your entire sales of your entire company?—A. About that.

Q. You say that, figuring your profits at about 25 per cent of your gross sales, you only lose money on the Pennsylvania system, the four small roads you named, you play even on the Maine Central and Boston & Maine and about even on the Harriman lines?—A. I would think so.

Q. Then, if your gross profits are more than 25 per cent, you
7602 lose money on those, don't you?

Mr. ROSENTHAL. No; just the contrary.

A. What is that statement?

Q. I mean if your gross profits are less than that you would lose money on these roads, wouldn't you?—A. I am not sure as to that.

Q. Now let us see. You testified the other day that on the Southern Pacific Company alone you lost money.—A. I said that, but I have corrected it. My statement was——

Q. You said on all the Harriman lines together you thought you played even.—A. Well, that means——

Q. On all the Harriman lines together you think you just about get even?—A. Yes.

Q. Is that correct?—A. Considering the balance sheet.

Q. Is that correct?—A. So far as my knowledge goes.

Mr. ROSENTHAL. Wait a moment.

Mr. KELLOGG. He says that is correct.

WITNESS. I didn't say so.

Mr. KELLOGG. What did you say?

Mr. ROSENTHAL. What is the percentage on all these roads?

Mr. KELLOGG. Now wait a minute until I get through with this witness, will you?

Mr. ROSENTHAL. No, I won't.

Mr. KELLOGG. Yes, you will.

Mr. ROSENTHAL. No, I won't. What is the percentage shown on this?

Mr. KELLOGG. I ask the examiner to give me a chance to
7603 examine this witness and not be interrupted.

Mr. ROSENTHAL. I will give you a chance. If I am going to permit counsel to break in and cross-examine, he will have to permit me to break in occasionally to ask the witness a question.

Mr. KELLOGG. No, I won't. Now, one moment. I ask the examiner that I be given fair treatment under the understanding that I was to be permitted to cross-examine this witness without interruption.

The EXAMINER. If Mr. Rosenthal wants to make an objection, I suppose he has a right to.

Mr. ROSENTHAL. I want to make a correction of a misstatement.

Mr. KELLOGG. No, you want to tell the witness what to answer. You know he will swear exactly to anything you tell him.

Mr. ROSENTHAL. Now, that is a statement that ought to be above and beyond you, Mr. Kellogg. You ought to be too big a man and too great a lawyer to make a statement of that kind.

Mr. KELLOGG. If you will wait until I get through.

Mr. ROSENTHAL. No, I won't.

Mr. KELLOGG. Very well. Go ahead. When you get through I will resume.

Mr. ROSENTHAL. Now, what is the percentage of refund to the Harriman lines, as shown on defendants' Exhibit 67? Let us get straight on that.

Mr. KELLOGG. I want to examine this witness on this question, and I am going to proceed to ask him these questions, and
7604 you can note your objection.

Mr. ROSENTHAL. Certainly; you can proceed.

Mr. KELLOGG. I ask the examiner to permit me to proceed with my cross-examination of this witness.

Mr. ROSENTHAL. I want the witness to have before him the figures when you are examining him on figures.

The EXAMINER. You can't both examine the witness at the same time. Mr. Kellogg has the witness now.

Mr. ROSENTHAL. Oh, surely not; but there has been a great deal of liberality here. Mr. Kellogg has been permitted to cross-examine any time he wanted to do so.

Mr. KELLOGG. That was our understanding, that we were to examine on each separate subject as we went along. Now, I wish to ask the witness if it is true, as you stated, that you about came out even on the Harriman lines?

A. Taking the lines as a system, I should say so.

Q. Very well. Now, that is correct, is it?—A. Yes, sir.

Q. Now, you remember testifying the other day that you lost money on the Southern Pacific as a separate system and you made money on the Union Pacific?—A. Yes.

Q. Is that correct?—A. Yes, sir. The Southern Pacific is a 66 per cent road and the Union Pacific is a 100 per cent road.

7605 Q. So that you make money on one and lose it on the other?—A. We are treating that as a system now.

Q. The question is, whether you make money on one and lose it on the other?—A. I am treating it now as a system.

By Mr. ROSENTHAL:

Q. I show you defendants' Exhibits 70-A, 70-B, 70-C, and 70-D and ask you what those are.—A. 70-A is a statement of operations under our contract with the Pittsburg railways, which cover the trolley lines in and around Pittsburg for the 12 months ended June 15, 1905. 70-B covers the operations for the 12½ months ended June 30, 1906. 70-C covers the operations for six months ended December 31, 1906. 70-D covers the 12 months ended December 31, 1907.

Q. These figures were taken from the books of the Galena-Signal Company?—A. Yes, sir.

Q. And are they correct and accurate?—A. Absolutely.

Mr. ROSENTHAL. I offer in evidence defendants' Exhibits 70-A, 70-B, 70-C, and 70-D.

Mr. KELLOGG. Objected to as immaterial.

By Mr. KELLOGG:

Q. You testified the other day that the main works of the Galena-Signal Oil Company were at Franklin, Pa.?—A. Yes, sir.

Q. As I recollect, you gave the different kinds of oil manufactured by the Galena-Signal Oil Company?—A. I think I stated them.

Q. Are those all manufactured at Franklin, Pa.?—A. No.

Q. Where are they manufactured?—A. Some in Canada, at

7606 Toronto.

Q. Where else?—A. Some at Parkersburg, West Virginia.

Q. Where else?—A. Some at Rouen, France.

Q. What other place?—A. That is all.

Q. Any of them manufactured at Olean, New York?—A. No, sir.

Q. Any manufactured at the Eclipse Works of the Atlantic Refining Company, Philadelphia?—A. No, sir.

Q. Those manufactured at Parkersburg, where do they get their stock?—A. The crude is shipped from our works at Franklin.

Q. It appears in evidence, as I recollect, that you use about 600,000 barrels of crude per annum at the Franklin works, is that correct?—A. Not of crude, no.

Q. About how much do you use?—A. I can't tell you.

Q. Well, about how much?—A. I can't tell you.

Q. Didn't you testify last fall on that subject?—A. No, sir. I think I gave you the total output of our plant in barrels.

Q. How much was it?—A. That included all oils; signal oil, valve oil, coach oil, engine oil, grease, etc.

Q. How much was that?—A. I think I said about 600,000 barrels.
Q. It would require, then, 600,000 barrels of crude, wouldn't it, to make it?—A. Not at all, sir.
Q. It wouldn't?—A. No, sir.
Q. How many hundred thousand barrels would it require?—
7607 A. I couldn't tell you.
Q. Haven't any idea?—A. No. I know it doesn't require 600,000.
Q. Well, about how many?—A. I can't tell you.
Q. You seem to be pretty well informed on the amount of oil, the various kinds, and where it is manufactured?—A. Yes.
Q. And you can't give any guess whether it is 1 barrel or 600,000?—A. I am not guessing.
Q. You have been doing a good deal of it. Let's have you do it on this.
Mr. ROSENTHAL. I object to the witness guessing, and I instruct him not to guess.
Q. Well, give us an estimate.—A. I can't estimate it.
Q. You don't use Franklin crude for all of it, do you?—A. I don't know anything of the kind.
Q. You know there is only about 40,000 barrels of Franklin crude produced per annum, don't you?—A. No, I don't know that.
Q. How does it happen that you know so much about everything except the question as to the amount of crude used?—A. I know everything that comes within my jurisdiction.
Q. Does the amount of oil produced at those works come within your jurisdiction?—A. I know what is shipped out.
Q. In your auditing department all that is shipped out of those works appears?—A. Yes, sir.
Q. What accounting departments come within your jurisdiction?—A. The railway accounting department.
Q. All your oils are not shipped out to railroads, are they?—A. No.
7608 Q. Those not shipped to railroads don't come within your department, do they?—A. Yes.
Q. Then there is something more than railroad accounting that comes within your department, isn't there?—A. Everything under contract comes under my jurisdiction.
Q. There is a good deal of oil that is sold that is not under contract, isn't there?—A. Yes; and that is all reported to me.
Q. Then all shipments of all kinds, all sales, come under your department?—A. Yes, sir.
Q. Anything else?—A. All settlements under the contracts come under my jurisdiction.
Q. Anything else?—A. It depends upon what you mean by "anything else."
Q. Any other department, anything else, any other work?—A. No, sir.

Q. No other work at all?—A. No, sir.

Q. Now, you say you commenced to take contracts with street railways about five years ago?—A. I think so.

Q. Well, do you know that, or don't you know it?—A. I am telling you what I think.

Q. What is the basis of your "think?"—A. That is about the time we entered that field.

Q. Before that you had sold no oils to street railways, you mean?—A. We had sold to one or two others—one or two roads at that time, and perhaps prior to that time.

7609 Q. Under contract or without contract?—A. Without contract.

Q. Do you mean to testify that prior to five years ago, with the exception of one or two roads, you never had sold any lubricating oil to any street railway system?—A. That is my recollection.

Q. Well, is that a fact?—A. I am telling you what I recollect.

Q. You say that all sales come under your department?—A. Yes.

Q. Do you know, or don't you know, whether you did?—A. I could determine it.

Q. Isn't it a fact that your company had been selling street railways lubricating oil, or your agents had, for years before that?—A. No, sir.

Q. Will you tell me where all the street railways got their lubricating oil?—A. No, sir; I can't tell you.

Q. You don't know anything about it?—A. No, sir. I know they didn't get it from us.

Q. Didn't get it from you?—A. No, sir.

Q. Until five years ago?—A. About five years ago.

Q. Prior to that time did you sell any lubricating oil through houses like Swan & Finch, Thompson & Bedford, or Speare & Co.?—A. To whom?

Q. To anybody.—A. No; excepting as heretofore testified.

Q. You never sold any lubricating oil through any outside houses prior to 1884, except——A. I don't know anything about 1884.

Q. Prior to five years ago, I should have said. Prior to five

7610 years ago you did not sell lubricating oils through these outside houses?—A. To whom? Are you talking about street railways now?

Q. To street railways or anybody else?—A. Well, we did to some steam railroads prior to that time.

Q. Did you to street railways?—A. No.

Q. Did the Vacuum Oil Company?—A. I don't know anything about it.

Q. Now, when you examined the accounts of street railways, in going over their cost for prior years, didn't you notice the Vacuum Oil sales to any of those?—A. No, sir.

Q. Never heard of it?—A. No, sir.

Q. You have had charge, I suppose, of the street railway sales department, have you?—A. Not of the sales department.

Q. Well, of the accounting department?—A. The accounting under the contracts, yes.

Q. And you have had to do, you have testified, with making some street railway contracts?—A. Yes, sir.

Q. And had general supervision over the business?—A. Not over the business, no.

Q. How came you to enter the street railway department five years ago?—A. We entered the street railway department by reason of some of the street railway managers having been in steam railway service prior to their connection with the street railways, and soliciting us to lubricate their lines on the same basis that we did the steam railroads.

Q. And you never inquired into the state of the trade, to
7611 know where the street railways of the country got their lubricating oil prior to five years ago?—A. No, sir.

Q. Don't remember of having seen or heard anything about the subject at all?—A. No, sir.

Q. You approached the subject with absolutely no knowledge whatever of how they got their oil before that time?—A. No.

Q. You did?

Mr. ROSENTHAL. He says no, they didn't.

Q. Well, what knowledge did you have as to where they got it?—A. We knew that if we could lubricate steam railroads successfully we could street railways.

Q. That is not the question I asked you. I asked you if you had any knowledge then as to where all the street railways in the country got their lubricating oil prior to five years ago.

Mr. ROSENTHAL. Do you mean the witness or his company?

Mr. KELLOGG. The witness.

WITNESS. I had no knowledge whatever.

Q. None whatever?—A. None whatever.

Q. Who in your company would know anything about it?—A. I don't know that anyone would.

Q. You think they would all be as ignorant of that subject as you a[illegible]?—A. As far as I am concerned, I think so.

Q. Who is the president of your company?—A. Charles Miller.

Q. Where does he live?—A. At Franklin, Pa.

Q. Who is the general manager?—A. We have no general manager.

Q. Who acts as general manager?—A. The president.

Q. Mr. Miller. What other officers have you?—A. We have
7612 a general superintendent of the works; we have a comptroller.

Q. What is the general superintendent's name?—A. George C. Miller.

Q. Who has charge of the manufacturing department?—A. George C. Miller.

Q. Who is superintendent of the compounding house?—A. George C. Miller.

Q. Who has knowledge of the compounding of the——A. George C. Miller.

Q. Where does he live?—A. At Franklin.

Q. Isn't it a fact that the Galena oils were years ago patented, stating the ingredients, and that the patents have run out?—A. I understood there was a patent on Galena oils.

Q. Stating their ingredients, didn't it?—A. And I understand that we departed from that patent years ago.

Q. Did I ask you that?—A. You wanted to know what I understand, and I am telling you what I understand.

Q. If you will please answer my questions, Mr. Steinbrenner—A. I am trying to.

Q. Did the patents state the ingredients of the oil?—A. I don't know anything about the patents.

Q. Then how do you know you have departed from them?—A. From what I understand.

Q. I thought you said you were not allowed to understand
7613 anything about the manufacturing of the product?—A. You asked about the patent. I understood there was a patent and that we had departed from that patent years ago.

Q. Do the books of the Galena-Signal Oil Company show the cost of the lubricants?—A. No, sir.

Q. Nowhere?—A. We don't keep any costs.

Q. You don't keep any costs?—A. No, sir; cost sheets.

Q. You don't keep any cost sheets?—A. No, sir.

Q. Anywhere?—A. No, sir.

Q. Doesn't the compounding department keep the cost sheets?—A. No, sir.

Q. Are they allowed to or not allowed to?—A. No, sir.

Q. They are not allowed to?—A. That is a secret.

Q. The cost of your oil is a secret?—A. The cost, as well as the manufacture.

Q. You don't want the public to know the cost?—A. We don't want anybody to know the cost or the process of manufacture or the ingredients that go into it.

Q. And to know the cost would show the profit, wouldn't it?—A. The balance sheet shows the profit.

Q. It doesn't show what you pay the other Standard companies for the oil and the products, does it?—A. I don't know that we buy it from the Standard.

Q. Is the Galena-Signal Oil Company a producer of oil?—A. I don't know that.

Q. If it does not produce the oil itself it has to buy it, doesn't it?—A. I presume so.

Q. Does it refine oil?—A. No, sir.

7614 Q. The lubricating oils are the product of refined oils, are they not?—A. I don't know that.

Q. Well, now, I will see how much you don't know, Mr. Steinbrenner.—A. There is a whole lot I don't know.

Q. You have no knowledge whatever as to what lubricating oil is made of?—A. I know it is made of petroleum.

Q. Where does the petroleum come from?—A. From the ground.

Q. Does the Galena Signal Oil produce it out of the ground?—A. No; not that I know of.

Q. Then it must get it from somebody else, doesn't it?—A. I presume so.

Q. It must buy it then; doesn't it?—A. I expect so.

Q. It is not given to it, is it?—A. They don't steal it, either.

Q. If it buys it, it pays for it, doesn't it?—A. I suppose so.

Q. What does it pay for it?—A. I don't know.

Q. Does your company keep books showing that?—A. I don't know anything about it.

Q. Then you don't know that they do not keep cost sheets?—A. I know they do not keep cost sheets.

Q. Wouldn't the cost sheets necessarily include the cost of the raw material?—A. If they kept them.

Q. Do their books show the cost of the raw material?—A. No.

Q. They do not show it?—A. Not that I know of.

Q. Do you mean to say that the Galena-Signal Oil Company procures all its product from other companies, and the
7615 books don't show anything about the cost of it?—A. I said my books don't show it.

Q. Well, the books of the Galena-Signal Oil Company?—A. I don't know.

Q. You don't know?—A. No.

Q. Then you don't know that the Galena doesn't keep cost sheets, do you?—A. Yes; I do know that.

Q. How do you know?—A. Because I know they don't.

Q. How do you know they don't?—A. Because I have been told so, and know that they don't.

Q. Who have you been told so by?—A. I have gathered the information from different sources.

Q. From what sources?—A. From the comptroller.

Q. Who else?—A. From the general superintendent.

Q. From the superintendent?—A. Yes.

Q. Did he tell you they didn't keep the cost of the raw material they bought?—A. No.

Q. He didn't tell you that?—A. He didn't tell me that.

Q. Then you don't know but what the books may show the cost of the raw material they buy?—A. I don't know that.

Q. Did George C. Miller tell you that they didn't keep cost sheets?—A. I forget now whether he did, or someone else.

Q. Well, we have found out that they get their raw material from some other company.—A. Did you?

Q. Why, you said they didn't produce it?—A. Well?

Q. And that they made it from crude petroleum; so they
7616 must get it from some other company?—A. Exactly; if you say so.

Q. Well, isn't that correct?—A. I should think so.

Q. Where are the Eclipse Works of the Atlantic Refining Company?—A. Just outside of Franklin.

Q. How far from your works?—A. Possibly half a mile.

Q. Where does the Eclipse Works get its crude petroleum?—A. I don't know.

Q. What does it manufacture?—A. All kinds of petroleum.

Q. All kinds of petroleum?—A. So far as I know.

Q. Is there a pipe line between your works and the Eclipse Works?—A. I don't know anything about it.

Q. Don't know anything about it?—A. Don't know anything about it.

Q. Never saw it?—A. Never saw it, and never heard of it.

Q. Never heard of it? Have you ever seen any deliveries of oil, crude or otherwise, made to the Franklin works?—A. No, sir.

Q. Never?—A. No.

Q. Never have seen it?—A. No, sir.

Q. You have absolutely no knowledge that the Franklin Works ever receives any crude from any place?—A. No, sir. I don't know where it comes from.

Q. You never heard where it came from?—A. No, sir.

Q. Did you ever have any curiosity to find out?—A. No, sir.

Mr. ROSENTHAL. Now, wait a minute. I object to this. I haven't any recollection of anything on the direct, of which
7617 this is cross-examination.

Mr. KELLOGG. Oh, yes; you asked him about the kinds of oil they produced, whether they kept cost, and various things.

Mr. ROSENTHAL. No; I didn't. You are the man who asked him about that.

Mr. KELLOGG. And about their profits. I am trying to find out the basis of their profits.

Mr. ROSENTHAL. I didn't even ask him that. I figured the profits on the basis of the balance sheets which you put in evidence as your exhibits, and assumed that to be correct.

Q. Did you furnish these balance sheets?—A. No.

Q. Do you know anything about them?—A. Only as I have seen them here.

Q. Now, you say that the Franklin company objects to keeping books showing the cost of its lubricating oils?—A. I didn't say it objects to it. I said they don't do it.

Q. They don't do it?—A. No.

Q. Why don't they do it?—A. I don't know.

Q. Now, in the balance sheet of the Galena-Signal Oil Company I see an item, "Crude, manufacturing, selling," etc., $6,087,351.74, for the year 1906. What do you understand that means?—A. That means the cost of the crude product that was purchased, the expense connected therewith, and the selling of it.

Q. And the cost of manufacture?—A. Yes; I should think so.

Q. Crude, manufacturing, selling, etc.—A. That is what it states.

7618 Q. That would indicate that they keep the cost of manufacturing and the cost of the crude, wouldn't it?—A. The cost of manufacturing all the products?

Q. Yes, and the cost of the crude.—A. They wouldn't keep the cost of individual oils, the kind of oils.

Q. It would show the cost of the crude, wouldn't it?—A. It would show the cost of the crude plus those other expenses.

Q. Certainly.—A. Yes.

Q. So they must keep books showing the cost of the crude?—A. Not necessarily. It goes into one item under that head.

Q. They have to find out how much it is, to add it to the other, don't they?—A. I expect they do.

Q. Certainly. Then they must keep an account of it?—A. I expect they do.

Q. Yes. Well, that is what I am trying to get at. Now, where do they keep it?—A. I don't know.

Q. Now, you sell your engine oil all the way from 18 to 48 cents a gallon?—A. No, we don't.

Q. To railroads?—A. Engine oil is sold at 30 cents a gallon in barrels.

Q. I am talking about valve oil.—A. Valve oil at 48 cents in barrels.

Q. And car oil at 18?—A. Car oil at 18.

Q. Now, if you don't keep the cost of the crude and the manufacturing, how do you know what price to charge?—A. That is our price, and I don't know what it is made up of.

7619 Q. Well, who would know?—A. I don't know.

Q. What department keeps the books showing that?—A. I don't know.

Q. You don't know anything about that. Well, we will find out. You testified that you manufacture about 150,000 barrels of signal oil?—A. That was a guess.

Q. And 600,000 barrels of lubricating oil?—A. No; I said 600,000 of all.

Q. Of all?—A. Yes.

Q. That includes the 150,000 barrels?—A. I think so.

Q. Now, is that a guess, or is that an estimate of your knowledge?—A. That is an estimate.

Q. On what do you base your estimate?—A. On figures that pass through my office.

Q. Then you do have in your office statements showing the total amount of manufacture?—A. No, I don't.

Q. Well, do they pass through your office?—A. No. All invoices——

Q. Then what do you mean by saying that you get this information from statements passing through your office?—A. I have the sales in my office.

Q. Of all the oil?—A. Of all the oil.

Q. Then you do have a statement of all the oil that is produced, don't you?—A. No; that wouldn't necessarily follow.

Q. You sell it all, don't you?—A. We may have some on hand, a greater quantity at one period than at another.

7620 Q. From year to year you sell substantially all; you don't keep accumulating?—A. I know the output; that is all.

Q. Of the factories?—A. Yes.

Q. Well, give it to us, then?—A. I can't give it to you offhand.

Q. What proportion of the total oil manufactured by the Galena-Signal Oil Company is petroleum?—A. Is of petroleum products?

Q. Yes.—A. I don't know.

Q. You don't know anything about it?—A. No.

Q. Have you any opinion on that subject?—A. No, sir.

Q. Can't give any estimate?—A. No, sir.

Q. Never heard?—A. No, sir.

Q. Haven't any idea whether it is 1 per cent or 99 per cent?—A. No.

Q. Do you know that any of it is petroleum?—A. Yes; I do.

Q. How do you know that?—A. Because I know the oil is made of petroleum.

Q. Where did you find that out?—A. I don't have to find that out. A schoolboy knows that.

Q. He does?—A. Yes.

Q. Well, lubricating oil is made of petroleum?—A. Yes.

Q. Are your lubricating oils generally made of petroleum?—A. Yes.

Q. Now, then, what part petroleum?—A. I don't know.

Q. Do you know whether it is half a per cent of petroleum?—A. No; I don't know.

Q. A schoolboy knows that there is some petroleum in it?—

7621 A. He ought to; ought to know that.

Q. Don't you know, as a matter of fact, that everybody knows that substantially all of it is the product of petroleum?—A. I don't know that everybody knows that.

Q. Well, you know it, don't you?—A. I think I do.

Q. Then why didn't you say so?—A. Because I am not guessing at it.

Mr. ROSENTHAL. You didn't ask him that, either.

Q. Isn't it a fact that nearly all of the lubricating oil is the product of petroleum?—A. I should think so.

Q. Now, if you had said that some time ago, you would have saved considerable trouble.—A. You didn't put your question that way.

Q. Now, if that is a fact, nearly all of the 600,000 barrels which you manufacture is the product of petroleum?—A. Not necessarily.

Q. What do you mean by that?—A. I mean that some part of it; but what part of it is I don't know.

Q. What did you mean when you said that nearly all of the lubricating oil was the product of petroleum?—A. But that 600,000 barrels includes signal oil, grease, and everything else.

Q. Isn't grease, most of it, a product of petroleum?—A. I don't know.

Q. You don't know anything about that?—A. No.

Q. Isn't signal oil, most of it, a product of petroleum?—A. It is partly so.

7622 Q. Isn't the larger part of it petroleum?—A. I don't know.

Q. Well, signal oil is an illuminating oil, isn't it?—A. Yes.

Q. Substantially all the products of that is petroleum, isn't it?—A. I don't know.

Q. Why does Mr. Miller object to coming here and testifying?—A. He hasn't.

Q. He was asked for several times.—A. I didn't know that.

Q. Now, in the street railways of the country, you make the best bargain you can with each railway, don't you, the same as you do with the railways?—A. We take most of them on 90 per cent of the previous cost.

Q. Well, you get the best bargain you can, don't you?—A. No.

Q. You don't?—A. No.

Q. You have taken all of them, have you, on 90 per cent of the previous cost?—A. Nearly all of them.

Q. Have you taken all of them?—A. Not all of them.

Q. How many of them have you taken?—A. The statement in evidence will show.

Q. I notice there are fifteen railways here that you take at 100 per cent of previous cost [referring to defendants' Exhibit 45].—A. I make it fourteen.

Q. Now, do you know Thompson & Bedford?—A. No, sir.

Q. Never heard of them?—A. Never heard of them.

Q. Do you know the Thompson & Bedford department of the Standard Oil Company?—A. No, sir.

7623 Q. Never heard of it?—A. I have heard of it.

Q. When did you hear of it?—A. Since reading this testimony here in the papers.

Q. Do you know that the Thompson & Bedford departments of the Standard Oil have been dealing in selling lubricants for years?—A. No; I do not.

Q. You don't know that?—A. No.

Q. You never heard of it?—A. I may have heard of it.

Q. You didn't know, in your business with the railways and street railways, that Thompson & Bedford had been selling lubricating oils?—A. Never have come in contact with it.

Q. And never saw them as sellers in the market?—A. No, sir.

Q. Or heard of them?—A. No, sir.

Q. Never heard of the Atlantic Refining Company manufacturing any lubricating oil?—A. No, sir.

Q. Never heard of the Vacuum Oil Company manufacturing any lubricating oil?—A. I have heard of it.

Q. Did you ever hear of the lubricating oil called the Atlantic Red?—A. No, sir.

Q. Did you ever hear of Swan & Finch?—A. Yes.

Q. Did you ever hear of their selling lubricating oil?—A. I have heard of it.

Q. How long ago?—A. I can't tell you.

Q. For the Standard Oil Company?—A. Not that I know of.

Q. Never heard of that?—A. No.

Q. Never heard of Borne & Scrymser?—A. I have heard of them.

7624 Q. Hear of their selling lubricating oils?—A. No.

Q. Did you ever hear of S. T. Baker & Co.?—A. Yes.

Q. When?—A. Possibly ten years ago.

Q. What became of the company?—A. It is still in existence.

Q. Who owns it?—A. The Galena-Signal Oil Company owns stock in it.

Q. What does that company do?—A. They sell lubricating oil.

Q. How long has it sold lubricating oil?—A. As far as I know, about ten or twelve years ago.

Q. Prior to that time what was it doing?—A. I don't know.

Q. Is it a corporation?—A. I think so.

Q. And owned by the Galena-Signal Oil Company?—A. We have stock in it.

Q. Does anybody else have stock in it?—A. Not that I know of.

Q. Then, you own all of the stock?—A. I presume so.

Q. Now, does that company sell lubricating oil?—A. Yes.

Q. Then, it is a fact that there are companies selling lubricating oil that you know of?—A. Yes; that one.

Q. Where does it sell?—A. It sells to commercial trade; it sells to coal miners, coal-mining machinery.

Q. Now, what is the commercial trade?—A. I would say the commercial trade consists of the marine trade anywhere around here in New York; different manufacturing plants.

Q. Street railways?—A. Yes; I would consider that commercial trade.

7625 Q. Now, this concern, S. T. Baker & Co., have been doing that business for the Galena-Signal people for about 12 years?—A. Not for the Galena-Signal Oil Company; for themselves.

Q. Well, the Galena-Signal Oil Company owns it?—A. We own stock in it.

Q. You own all the stock in it?—A. I don't know.

Q. What was the basis of your opinion that you did?—A. I said I presumed so.

Q. Do you know that the exhibits in evidence show that the Galena-Signal Oil Company owns all the stock?—A. I didn't know that.

Mr. ROSENTHAL. Well, do they? Do the exhibits show that?

Mr. KELLOGG. Yes; S. T. Baker & Co., total capital $50,000; Exhibit No. 11.

Q. Now, this exhibit (Exhibit 11) shows that the Galena-Signal Oil Company owns all the capital stock. How many years has it owned that stock?—A. I couldn't tell you.

Q. How many years has it controlled the company?—A. The first I knew of the S. T. Baker Company was about ten or twelve years ago.

Q. Where was it located?—A. In New York.

Q. Selling commercial lubricating oil?—A. I presume so.

Q. And did your company then own it?—A. I don't know.

Q. During these ten or twelve years it has continued to sell lubricating oil, has it?—A. Yes, sir.

Q. And is doing so now?—A. Yes.

7626 Q. Where does it get the oil?—A. From various sources, I suppose.

Q. Any from the Galena-Signal Oil Company?—A. They handle our oils, and act as agents here in New York for us—distributing agents.

Q. And have they done so for about ten or twelve years?—A. Yes, sir.

Q. Now the West Virginia Oil Company, what is that?—A. I don't know anything about it

Q. Never heard of it?—A. No, sir.

Q. It (Exhibit 11) shows that your company has a stock interest in that. Are there any other companies that you know of during these years, connected with the Standard Oil, that have sold lubricating oil?—A. No, sir.

Q. Have you seen the price list put out by the Atlantic Refining Company and the Vacuum Oil Company, the Standard Oil of New York, on lubricating oils?—A. No, sir.

Q. Never saw that?—A. Never.

Q. Never heard of it?—A. Never.

Q. Did you ever see their advertisements?—A. No.

By Mr. ROSENTHAL:

Q. How long has the system of bookkeeping which you now have been maintained in you offices?—A. Since my connection with the company; that is, it has been a gradual matter of evolution to the present point.

7627 Q. But you have substantially the same general system of bookkeeping in your department now that you have had during all the years that you have been connected there?—A. Yes, sir.

Q. With such improvements as you have been able to introduce?—A. Yes, sir.

Q. And with respect to these bookkeeping items, concerning the elements of cost, and so on, were those ever kept in any books that you had to do with?—A. No, sir.

Q. So that whatever the fact may be in that regard, there has been no change in fifteen years, so far as any attempt to evade keeping cost elements is concerned in your books?—A. No, sir.

7628 EDGAR G. BEATTY, called on behalf of the defendants, being duly sworn, testified as follows:

Direct examination by Mr. CRAWFORD:

Q. Mr. Beatty, where do you live?—A. Franklin, Pa.

Q. What is your business?—A. Expert for the Galena-Signal Oil Company.

Q. How long have you been connected with the Galena-Signal Oil Company?—A. Going on a little over four years.

Q. Prior to that, what was your business?—A. Mechanic.

Q. When you entered the service of the Galena-Signal Oil Company what duties were assigned to you first?—A. I was assigned as an expert on the Pittsburg Railways Company.

Q. What is the Pittsburg Railways Company?—A Street-car lines.

Q. Will you please state where it runs and how long it is?—A. It runs in and around the vicinity of Pittsburg, Allegheny (what is known as the North Side now), South Side, West End, and out through McKeesport, Homestead, East Pittsburg, Wilmerding; between five and six hundred miles.

Q. Between five and six hundred miles of track, do you mean?—A. Yes, sir.

Q. That is to say, where there is a double track you count that double, do you?—A. Yes, sir.

Q. About how many cars are there in service on the Pittsburg
7629 Railways Company?—A. At the present time there are about 1,665 cars, I would judge.

Q. It is an electric-power road, is it?—A. Yes, sir.

Q. Run by an overhead trolley, a third rail, or what?—A. By overhead trolley.

Q. How many power houses are there in connection with the Pittsburg Railways Company?—A. Six.

Q. Will you state where they are located?—A. The Twentieth street power house is located at 20th street and Penn avenue, or just back of Penn avenue. The Beaumot Island power house is located opposite McKees Rocks, on the Ohio River. It is on an island. The Glenwood power house is located at Glenwood. The 30th street power house is located at 30th street and Carson street, South Side. The Suburban power house is located up in Knoxville. The Manchester power house is located on Juniata street in Allegheny; the North Side they call it now.

Q. What is the amount of power produced and the extent of each one of these? Take the 20th street power house.—A. The 20th street power house produces on an average about 4,000,000 kilowatts per month.

Q. Now the Beaumot Island?—A. About 3,500,000, or 3,200,000 kilowatts per month.

Q. The Glenwood?—A. Glenwood about 1,500,000 to 1,800,000.

Q. The 30th street?—A. About 400,000 to 450,000 kilowatts.

Q. The Suburban?—A. The Suburban runs anyways from 25,000 K. W.'s up to 125,000. That is not run all the time.

7630 Q. And the Manchester?—A. The Manchester varies; along about 1,000,000 to 1,200,000.

Q. In round figures, as I make it, that amounts to something like 10,000,000 kilowatts a month.—A. Well, it varies. Between 10,000,000 and 12,000,000. I am just giving it approximately, all of them put together.

Q. Were you the first Galena expert on these Pittsburg railways, or had you a predecessor?—A. No, sir, I was the first one on there.

Q. Was the contract made at about the time you went there?—A. The contract was made a few days before I went there.

Q. And you went there simultaneously with the beginning of the service, did you?—A. Yes, sir—with the beginning of the contract.

Q. What was the first thing that you did after you got there, in regard to rendering services?—A. I started in to line up the men; to put cups on the old grease motors. At that time we had the old grease motors; and changed over from grease to the use of oil, which at that time was pretty hard to do, because the men were not posted as far as oil was concerned, or its use. The different style of cups required for different motors would take considerable time to clean them out and get them in good shape so we could use the oil in them. That took us along from four to six or seven months to get all of the cars complete. Do you want me to give you a kind of a history of it?

Q. Go on.—A. Then the object was to get them in line to use as little oil, and waste as little as possible.

7631 Q. What do you mean by getting them "in line?"—A. Instructing them in the use of it, and getting them to have periods, different times of oiling their cars, and getting them from each barn in each division. When we first went there they oiled their journals some every other night and some every night.

Q. Are you speaking about the journals on the cars now?—A. Yes, sir. To get down to a system which we established there a little later on, after getting the cups in and the use of the oil, we took a car from each and every route, from every barn, packed the car under the instructions which the Galena Oil Company puts out regularly, and started them out, sealed them up to get the length of time that we could come to a satisfactory period, and then we would satisfy the men all concerned. We found that that would vary anywheres from 30 days up to 4 and 5 months; and to get down to an actual system we had a schedule for cars, a large sheet made with every car on there, the day of the month——

Q. Now, wait a moment. Not being an electric car expert, I can't follow you quite as closely as I should. Do you mean to say that in order to demonstrate what should be done with these cars, you took a single car?—A. A single car.

Q. On each route?—A. On each route.

Q. And put it into good order, according to your understanding?—A. Yes, sir.

Q. Now, you say you sealed it up. What do you mean by that?—A. We sealed it up so the men couldn't put any more oil in.

7632 Q. What did you seal up?—A. The journal box.

Q. You sealed all the journal boxes up?—A. Of those particular cars; yes, sir.

Q. So that no additional oil could be put in?—A. No, sir; no more was put in.

Q. And then were those cars put into service?—A. They were put into regular service and let run the life of how long they would run with Galena oil.

Q. Do you mean that they were allowed to be run in ordinary use until they gave evidence of needing more lubrication?—A. Until they whistled or became warm—heated.

Q. That is, until the bearings became warm?—A. Yes, sir.

Q. Or made a noise?—A. Well, made what we call whistling—whistling just like a whistle. When they start to become hot, they start to whistle.

Q. And that is an indication that more oil is needed, is it?—A. Yes, sir.

Q. How many such cars did you equip and seal up?—A. We sealed up from each and every barn and from each and every route.

Q. How many were there?—A. I couldn't give you the positive route, you know. There are 21 barns at the present time.

Q. Over how long a period were you trying these experiments?—A. About five months.

Q. And you finally determined how long you could run a

7633 car, did you, on a single oiling?—A. On a single oiling; during that time it varied from 30 days up to 6 months.

Q. What were the circumstances which made it vary?—A. The condition of the track, the hills and curves, and the percentage of grade that we had to go and come over.

Q. Where there were hills and curves, did it take more oil? I mean to say, was the period shorter?—A. The period where it was hilly and the curves were sharp and the tract in not very good condition, the period was made shorter. Where the routes were not so hilly, the track in good condition, the periods were extended out to 60 days, after we had tried out this five months. On the other, harder routes, down to 30 days. We have adhered to that period of oiling ever since.

Q. After you had worked out to their satisfaction the periods upon which the cars could be run on a single oiling, under different circumstances, what did you do then—what did the management do?—A. The management was very well pleased with it.

Q. What did they do about it?—A. They backed me up with the master mechanic, to adhere strictly to those rules of oiling during those periods.

Q. You mean to say that those times as determined by you, were settled upon by you as to be used thereafter?—A. Yes, sir.

Q. How was that information conveyed to the men?—A. By the master mechanic to the foreman of each barn.

Q. In what way?—A. By letter, I think, and verbally.

7634 Q. Was anything posted up about it, any printed matter, or any writing?—A. No, I don't believe there was.

Q. You mean the men were told that where they ran the cars over these different routes they were to oil only once so often, according to this schedule?—A. There was a large chart or sheet that we had for every car in each barn, and it was put on that sheet, which showed each day of the month. It showed when it was to be oiled and when it was oiled, the last oiling, and each period was extended out 30 and 60 days in the different places.

Q. Do you mean every car of the 1,600 cars (or whatever the number was) was kept on this chart?—A. At all the barns; yes, sir.

Q. In short, the oiling of all the equipment was to conform to this chart you made out?—A. To this chart; yes, sir.

Q. And do you know whether that has been lived up to since?—A. Yes, sir.

Q. When you went there did you first consult the managers of the road as to what you wanted to do?—A. Yes, sir.

Q. Did you make any explanations to them?—A. I said to prove it out, and that is the way we happened to take the cars from each different barn—to prove out the life of those oils.

Q. After you had proved it out, that is to say, after you had worked out this schedule that you are talking about, then the management adopted it, did it?—A. Yes, sir.

Q. And gave instructions that it should be followed?—A. Yes, sir; all the master mechanics.

7635 Q. What effect upon the quantity of oil that was used did the adoption of that schedule have?—A. You mean in the quantity of oil in the reoiling?

Q. Yes; from time to time in the course of the year, as compared with the previous period.—A. Why, we just simply put in what we thought the journal box or the packing would hold.

Q. Yes; I know; but you made changes, radical changes, in the plan of oiling by this schedule?—A. Yes, sir; by the packing of each and every journal, and then the schedule was adhered to right along.

Q. After the oils were once packed, according to your views of what was right, then they were reoiled once in 30 days or once in 60 days, as the case might be, according to this schedule that you established?—A. Yes, sir.

Q. And that was true of all the cars on the route?—A. Yes, sir.

Q. Now, what I want to know is how the quantity that was used up in a given length of time, say a year, under that system, compared with the quantity that was used before you put that system in force? Not the quantity on any one bearing, but the general quantity. Was it more or less?—A. Why, it was less.

Q. Much less or slightly less, or what was it?—A. Let me think a little bit on that.

Q. I don't care for the exact figures, but I just want to know in a general way.—A. Before that schedule was put into effect they used in the neighborhood of 4,000 to 4,200 gallons of oil a month.

7636 After the schedule was put into effect it has run down in the neighborhood of 2,800 to 3,000, and some months down as low as 2,100.

Q. So that this system of yours has pretty nearly cut the quantity in two?—A. Yes, sir; very nearly.

Q. What has been the experience with power houses? You have been telling us about the power. What did you do in the power houses? What did you find when you went there?—A. I found the conditions very bad.

Q. State in what way.—A. The engines weren't in the very best of conditions, the cylinders weren't, the general conditions of the power house so far as retaining the old oil—that is, the engine oil, that is, using it over and over; and at Beaunot Island, where they have a new system put in, the system has changed entirely. At 20th street the conditions are better. They have repiped it to a great extent, done away with a great many leaks, and also used the shelves. Where they had no shelves before they have part of the engines covered now.

Q. How did they come to make those changes?—A. Recommended from Mr. Goudy, who was the chief engineer.

Q. So they were made on your advice, were they?—A. Partly on my advice, and also sanctioned by Mr. Goudy.

Q. Sanctioned by him, but suggested by you, were they?—A. Yes, sir; partly.

Q. Have there been any changes in the use of oil there in the power houses, in the method of using it, since you went there?—A. Yes, sir; we made those improvements, and are making them at the pres-

7637 ent time. The Glenwood power house, the Manchester power house, and the 30th street power house, the oiling systems there are very small; they are not large enough to accommodate the engines on account that they have put in larger units than when we first took hold, and of course the conditions have been very bad—that is, the tearing up and everything of that kind. They are making preparations to put shelves on the engines at Glenwood. The trouble there has been catching the oil in buckets, and waste laid around the edge of the engine to catch the engine oil.

Q. I show you Defendants' Exhibit 70, A, B, C, and D. Referring to these exhibits, will you state what the guaranties are in the contracts between the Galena-Signal Oil Company and the Pittsburg railways, concerning which you have been testifying?—A. The guaranteed cost of cars is .173088.

Q. Where are you reading from?—A. Down at the bottom.

Q. That is the guaranty on the number of kilowatt hours, is it?—A. No; that is the guaranty on the cars per 1,000 miles.

Q. Haven't you made a mistake about that?—A. Yes, sir; that is the k. w. hour. The cars is .316431.

Q. The first guaranty which you read, of 17 cents and a decimal, is the guaranty per 1,000 kilowatt hours, is it?—A. Per 1,000 kilowatt hours produced.

Q. That is the unit of current, isn't it?—A. Yes, sir; in one way.

Q. At any rate, that is the measure of operation in the power house, isn't it?—A. Yes, sir.

Q. And that guaranty of 17 cents—.173088—is the guaranty in the contract which relates to the lubrication of the power
7638 house?—A. Yes, sir.

Q. Is that correct?—A. Yes, sir.

Q. Then, the other guaranty, about 31 cents—.316431—is the guaranty per 1,000 car miles?—A. Yes, sir.

Q. And is, therefore, the guaranty which governs the lubrication of the cars?—A. Yes, sir.

Q. There are in this contract, then, two elements—the lubrication of the power house and the lubrication of the cars?—A. Yes, sir.

Q. And they are covered by separate guaranties?—A. Yes, sir.

Q. And the statements are made up separately?—A. Yes, sir.

Q. These statements in your hands are made up separately, are they not, in regard to the power houses and the cars?—A. Yes, sir.

Q. Now, taking Defendants' Exhibit 70–A, which is the statement of operations for 12 months ended June 15, 1905, of the Pittsburg railways, what was the per cent of excess or refund on the power houses?—A. 38.27.

Q. Was that the first year of the contract?—A. Yes, sir.

Q. Then, for the first year of the contract the operation of the power houses showed that the actual cost exceeded the guaranteed cost by 38.37 per cent?—A. Yes, sir.

Q. Now, turn over to the next sheet, which is the statement
7639 for 12½ months ended June 30, 1906, substantially the second year of the contract.—A. Yes, sir.

Q. And what is the percentage of excess on the power house there?—A. 29.30 per cent loss.

Q. Per cent of excess, is it?—A. Per cent of excess.

Q. That is, in that year the actual cost to the Galena Company exceeded the guaranteed cost by 29.30 per cent?—A. Yes, sir.

Q. Now, take the next statement, which is Exhibit 70–C, for 6 months ending December 31, 1906, and state what is the percentage of excess in that period on the power houses.—A. On the power houses it was 19.36 per cent of excess.

Q. Then take the fourth statement, 70–D, which is the statement for 12 months ended December 31, 1907, on these same Pittsburg railways, and state what the per cent of excess on the power houses was there.—A. 17.43 per cent excess.

Q. So that for those four years there was a steady decline, was there, in the per cent of excess?—A. Yes, sir.

Q. And the operation has brought the actual cost nearer and nearer to the guaranteed cost so far as the power houses are concerned?—A. Yes, sir.

Q. And in 1907 it was within 17 per cent of the actual cost, was it?—A. Yes, sir.

Q. Now, go back to 70-A again and take the matter of the mileage cost—that is, the cost of the lubrication, as I understand you,
7640 for running the cars, and state what the per cent of excess in the first year was.—A. The per cent of excess was 12.75 for the year closing June 15, 1905.

Q. That is to say, in that year the actual cost exceeded the guaranteed cost by 12.75 per cent?—A. Yes, sir.

Q. Now, state in the remaining periods the percentage on the same points, giving the period in each case.—A. The period of 12½ months ending June 30, 1906, the per cent of excess on cars was 6.19; for 9 months ending December 31, 1906, the per cent of excess was 1.78; for 12 months ending December 31, 1907, the per cent of excess was 6.43.

Q. So that in the matter of the car lubrication also there has been, on the whole, a decline in the excess, and it is now very near to the guaranteed cost?—A. Yes, sir.

Q. Are you able to state whether the use of Galena oils has had any effect upon the matter of repairs or the life of the machinery used on this road?—A. It has.

Q. Explain that.—A. I can give you the life, as I remember, the first few months, when we first started, of the armature repairing, which was considered their most dangerous point to look after. It averaged along in the neighborhood of 30 days. Some armatures or bearings would only last a week or ten days, but I would judge they averaged along about 30 days. The life of an armature bearing, with Galena oil, as near as I can remember at the present time, averaged from 7 to 11 months, and we have had them run as high as 23 months.

Q. How numerous are armature bearings in a power house?—A. They don't run in the power house.

Q. These are on the cars, are they?—A. These are on the cars.

7641 Q. It shows how much I know about electricity. How numerous are they on the cars; how many on each car?—A. Take on a two-motor equipment—that is, a single-truck car—we have four armature bearings and four axle bearings.

Q. Do you know what these armature bearings cost the railroad?—A. They vary from $5 up to $6.50 and $7 a bearing.

Q. From $5 to $7 a bearing?—A. Yes, sir.

Q. And of those there are four on each car?—A. Four on each car.

Q. That would be a variation of from $20 to 28 on each car?—A. In the neighborhood of that.

Q. You said that applied to the two-motor cars. Are there any other kind of cars? There are some with four motors, are there not?—A. That is a double-truck car.

Q. How many armature bearings have the double-truck cars?—A. They have eight.

Q. Of equal size?—A. Of equal size; four-motor equipment.

Q. And does what you have said already apply to those armature bearings also?—A. Yes, sir.

Q. Now, is there anything else except the armature bearings where a difference in the life of the bearings has been created by the use of Galena oils?—A. That is in the life of the armatures. They have been extended considerably.

Q. Tell us about that.—A. Before I went there, in June, 1904, they kept no data of that kind at all. It is very hard for me
7642 to give you any data from the railroad of that kind.

Q. No; tell us what you know yourself.—A. But from my own observation we would have anywhere from 50 to 100 of those armatures down in a day, both at the Homewood barn and over at the Manchester.

Q. What do you mean by having them down?—A. The car would be pulled in out of service; they would either be short circuited or out of commission.

Q. How many armatures are there on a car?—A. One for each motor.

Q. That would be two for the two-motor cars and four for the four-motor cars?—A. Yes, sir. We have some four double-truck equipment in Pittsburg that has got two-motor equipment on it.

Q. What is the fact now about the frequency of their repairs?—A. We don't have any great trouble now at all in that respect. The life of those has extended out; where we used to have 18 or 20 winders, that is, winding armatures, down to one and two at those two points; that is, Homewood barn and Manchester. Those are the two division points where all the other barns send in their armatures for repair.

Q. What is the cost of an armature?—A. That varies anywhere from $20 up to $60.

Q. When the power was taken off for the repair of an armature, what had to be done, generally?—A. They had to be repaired; that is, new coils put in and rewound up with new banding wire, new
bearings; usually repairs made all over, except as you had to
7643 put in new wire entirely.

Q. Has there been any increase in equipment or change in equipment since you went there?—A. Yes, sir.

Q. Tell us about that.—A. They have added during the life of our contract 100 double-truck four-motor equipment cars. They weigh along in the neighborhood of about 42,000 pounds.

Q. Does a four-motor car take more oil to lubricate than a two-motor car?—A. Yes, sir.

Q. How much more?—A. About a third more.

Q. There has not been, however, any change in the guaranty?—A. Not until the first of this year.

Q. None, at any rate, in the statements that you have there?—A. No, sir.

Cross-examination by Mr. KELLOGG:

Q. Mr. Crawford examined you about these statements, Exhibits 70 A to 70 D. When did you first see those statements?—A. These original statements right here?

Q. Yes.—A. At the present time.

Q. You never saw them until to-day?—A. No.

Q. You never saw the figures therein until to-day?—A. Yes, sir; I have seen them before.

Q. Where?—A. At Franklin.

Q. When?—A. During the close of each contract, as I remember.

Q. At the close of the contract?—A. Yes, sir.

Q. You had nothing to do with making the contract?—A. No, sir.

7644 Q. You had nothing to do with making these figures?—A. No, sir.

Q. You don't know whether they are correct or not?—A. I would have to refer them to Mr. Steinbrenner.

Q. Then, you are not testifying to the corectness of these figures?—A. Except the guaranties.

Q. The guaranties are all you know about?—A. I know they are correct, personally.

Q. All you are called upon to do is to read these statements into evidence?—A. I would have to refer them to Mr. Steinbrenner.

Q. You don't know anything about them, whether they are correct or not?—A. Only as to what these figures state.

Q. Then, why were you reading them into evidence? To take up time?

Mr. CRAWFORD. I protest. These exhibits have been duly proved and put in by Mr. Steinbrenner, who had personal knowledge of them and put them in evidence.

Mr. KELLOGG. Then you got this witness here to read them all over so as to take up time?

Mr. CRAWFORD. Now, Mr. Kellogg, you know that is not so.

Mr. KELLOGG. That is the only object you could possibly have had, because they are in evidence already.

Mr. CRAWFORD. You know that is not so.

Q. When did you first go on the Pittsburg railways?—A. Along the fore part of June.

Q. What year?—A. 1904.

Q. At the time the company made this contract?—A. Yes, sir.

7645 Q. You had no knowledge of the railways before you went there?—A. No.

Q. Never had been on it?—A. No, sir.

Q. Knew nothing about its operation?—A. No, sir.

Q. And all you know as to the amount of oil they used before, you learned from hearsay? You had no personal knowledge of what they used before?—A. Nothing except as——

Q. You had no personal knowledge of the length of time their armatures lasted before, except what they told you?—A. That is all.

Q. And you have no personal knowledge of the saving in the machinery, except what they told you?—A. Yes, sir.

Q. What?—A. My own observation during the time I was there, the last four years.

Q. What?—A. In the last four years, my own observation.

Q. You weren't there before that?—A. Not before June, 1904.

Q. And all you know about the amount of oil they used before is what they told you?—A. They used grease, Mr. Kellogg.

Q. Well, the amount of grease they used before is what they told you?—A. I couldn't tell you.

Q. You don't know anything about that at all?—A. I don't know the quantity.

Q. Then, you have no personal knowledge as to whether you reduced the quantity one-half or not?—A. During our first year; yes, sir.

Q. You only know what they used before from what they told you, do you?—A. I don't quite understand your question.

7646 Q. You weren't there during the year before they made this contract?—A. No, sir.

Q. You don't know what they used or how much they used, do you?—A. How much oil and grease?

Q. Yes.—A. No, sir; not to my knowledge.

Q. That is what I thought.—A. I don't know the gallons or pounds of grease, prior to June 1, 1904.

Redirect examination by Mr. CRAWFORD:

Q. You said it took about five months to make these various tests with sealed boxes and to get a schedule established, did you not?—A. Yes, sir.

Q. Now, during that five months you know how much oil was being used, don't you?—A. Yes, sir.

Q. And, therefore, you have some personal knowledge as to how much oil was used before the schedule went into effect, and afterwards, haven't you?—A. Yes, sir.

Q. You know at least what took place during those five months?—A. I know what took place the first year. The average during the first year, or about nine or ten months of the first contract, as I remember, was about 4,000 or 4,200 gallons of electric-car oil per month. After the schedule was put into effect we gradually cut it down to very near one-half of what we used to use—up to the present time.

Q. So those 4,200 (or whatever it was) gallons per month, that you spoke about, you know from observation during the first

7647 nine months that you were there yourself?—A. Yes, sir.

Q. And the smaller quantity, something around half of that, which you stated, to which it was cut down, that is based on your personal knowledge of the subsequent operation, is it?—A. Yes, sir.

Q. So you have personal knowledge as to those figures?—A. Yes, sir; during the life of our contracts; not prior to June.

Q. That is all that I ask you. Now, didn't you tell me that you knew about the life of the armature bearings by comparing the life when you first went there with the life after you had been there for some time?—A. Yes, sir.

Q. I so understood you.—A. Yes, sir.

Q. And didn't you tell me that your comparison as to the life of an armature bearing was based, first, upon what you observed during the first few months when you first went there and what is now the case?—A. Yes, sir.

Q. And that is the fact, is it?—A. Yes, sir.

Q. So that that comparison is based upon personal knowledge, isn't it?—A. Yes, sir.

Q. And is the same true as to what you have testified about the armatures themselves?—A. Yes, sir.

Q. In other words, that you are comparing the condition of things as you found them when you first went there and for some time afterward with what they are now and have been recently?—A. Yes, sir.

7648 Q. And that is based on personal knowledge, is it?—A. And that is based on personal knowledge, in sight of my own.

Mr. KELLOGG. Are you testifying, Mr. Crawford?

Mr. CRAWFORD. I have gotten through correcting the wrong impressions that you have created by misstating the evidence.

Q. In regard to these statements, Exhibit 70 A, B, C, and D, did you receive any statements whatever yourself of the operation of the Pittsburg Railways?—A. I received the cost during each and every month.

Q. And has that been true since you went there?—A. Yes, sir, except the first year or so.

Q. Except the first year?—A. Yes, sir.

Q. Then, excepting the first year, you have received the statements every month of the cost, from which these statements are ultimately made up, have you not?—A. Yes, sir.

Q. Do these monthly statements show the mileage also?—A. Yes, sir.

Q. Then you did know at the time, or each month, the various performances from which these statements were ultimately compiled, did you not?—A. Yes, sir; I received that from Mr. Coffin's office.

Mr. KELLOGG. I will defer further cross-examination until to-morrow morning.

(An adjournment was here taken until the morning of Thursday, June 25, 1908, at 10.30 o'clock.)

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